



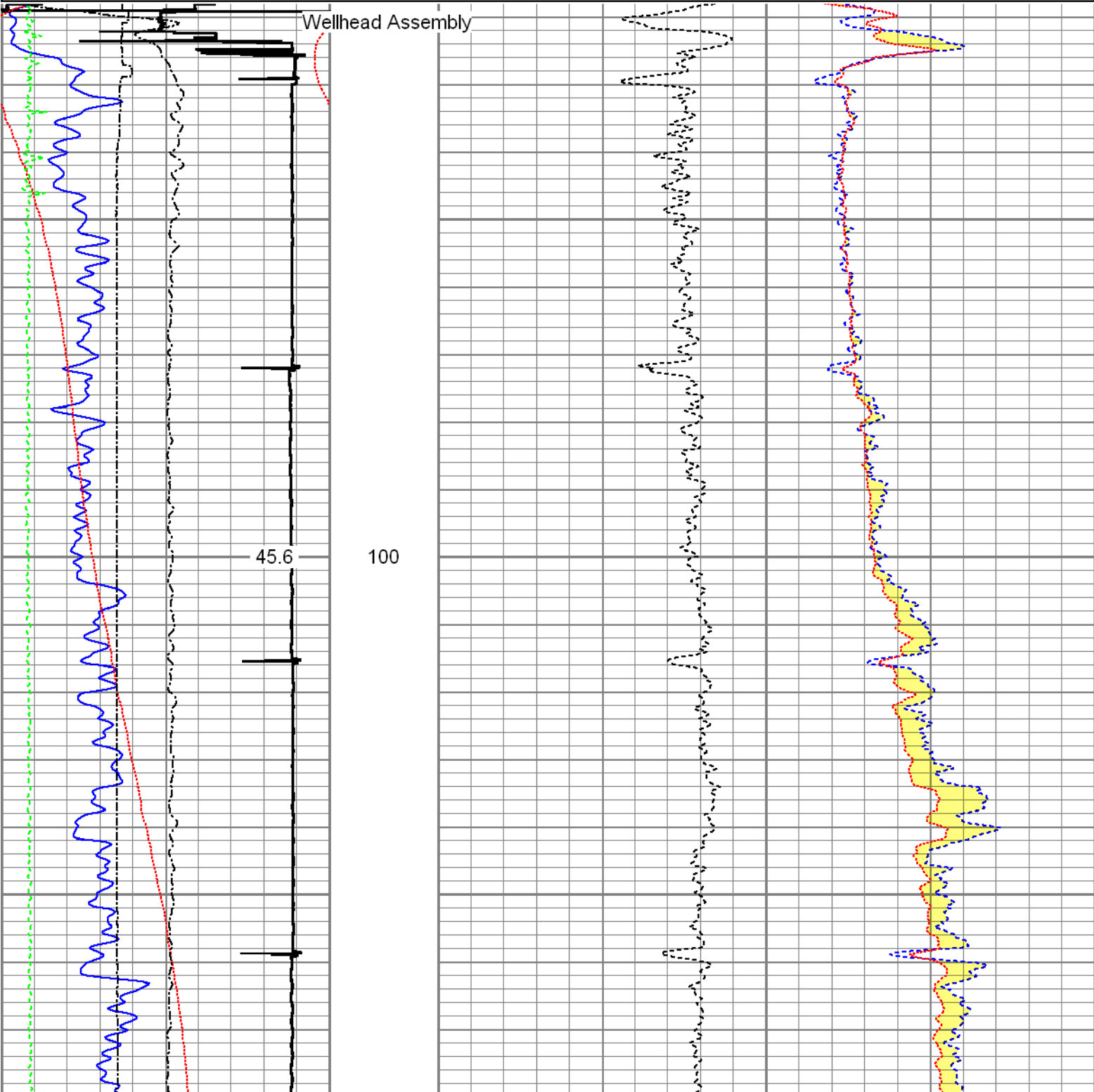
Compensated Neutron  
Gamma Ray  
Casing Collar Log

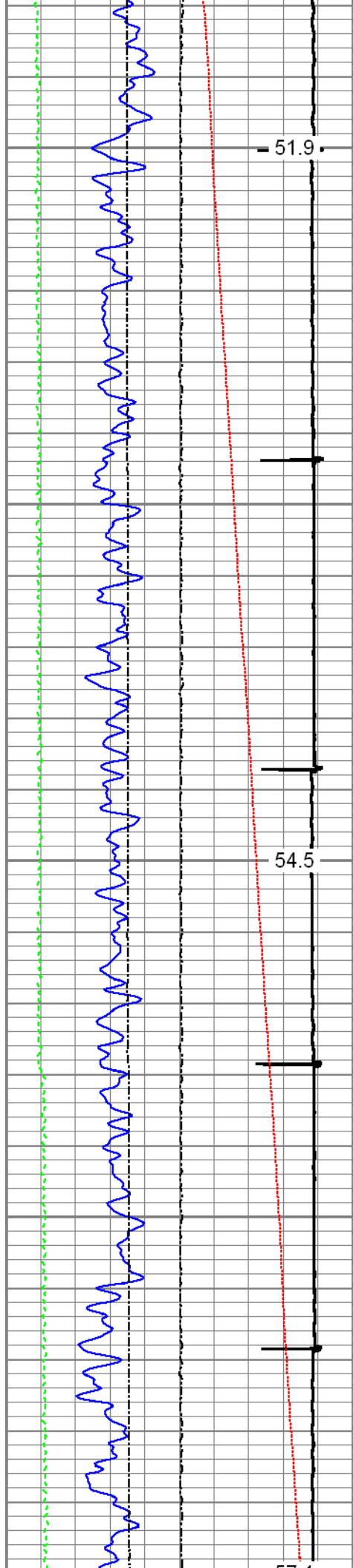
Company Noble Energy Inc.		Company Noble Energy Inc.	
Well Remora LC34-715		Well Remora LC34-715	
Field Wildcat		Field Wildcat	
County Weld		County Weld	
State Colorado		State Colorado	
Location:		API #: 05-123-40592	
SEC 34 TWP 9N RGE 59W		Other Services RCBL /MIT	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		Elevation	
K.B. 4838'		K.B. 4838'	
D.F. 4837'		D.F. 4837'	
G.L. 4814'		G.L. 4814'	
Date		28-Jan-2016	
Run Number		One	
Depth Driller		10017 FT	
Depth Logger		6108 FT	
Bottom Logged Interval		6107 FT	
Top Log Interval		Surface	
Open Hole Size		8.750"	
Type Fluid		Water	
Density / Viscosity		8.34 lbm/gal	
Max. Recorded Temp.		212.8 °F	
Estimated Cement Top		778 FT	
Time Well Ready		ROA	
Time Logger on Bottom		09:38	
Equipment Number		HD-0340	
Location		Fort Lupton, CO	
Recorded By		W.Wacker	
Witnessed By		Bill Mansfield	
Borehole Record		Tubing Record	
Run Number		Bit	
From		To	
Size		Weight	
From		To	
Casing Record		Size (in)	
Surface Casing		Wgt (lbs/Ft)	
Intermediate #1		Grade	
Intermediate #2		Top	
Liner		Bottom	
4 1/2		6102.4 FT	
11.6		10008 FT	
P110-1C		6181.7 FT	
26		633.2 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
7		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
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J-55		24 FT	
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J-55		24 FT	
P110-1C		24 FT	
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J-55		24 FT	
P110-1C		24 FT	
9 5/8		24 FT	
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J-55		24 FT	
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36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
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J-55		24 FT	
P110-1C		24 FT	
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J-55		24 FT	
P110-1C		24 FT	
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36		24 FT	
J-55		24 FT	
P110-1C		24 FT	
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J-55		24 FT	
P110-1C		24 FT	
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J-55		24 FT	
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9 5/8		24 FT	
36		24 FT	
J-55		24 FT	
P110-1C		24 FT	

Database File: 01-28-16\_noble energy\_remora lc34-715\_mit\_rbl\_cnl.db  
Dataset Pathname: pass11.1  
Presentation Format: cnl\_mit  
Dataset Creation: Thu Jan 28 13:07:37 2016 by Calc 7.0 B1  
Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	120
Casing Collar Locator		
0	Temperature (degF)	20
-100	Line Speed (ft/min)	100
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2

60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
			0	Near Neutron (cps)	10000

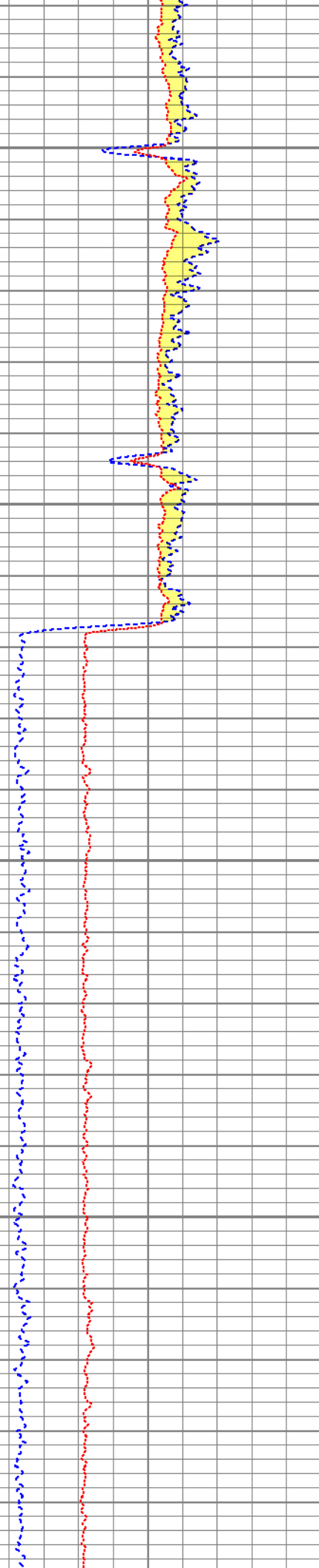
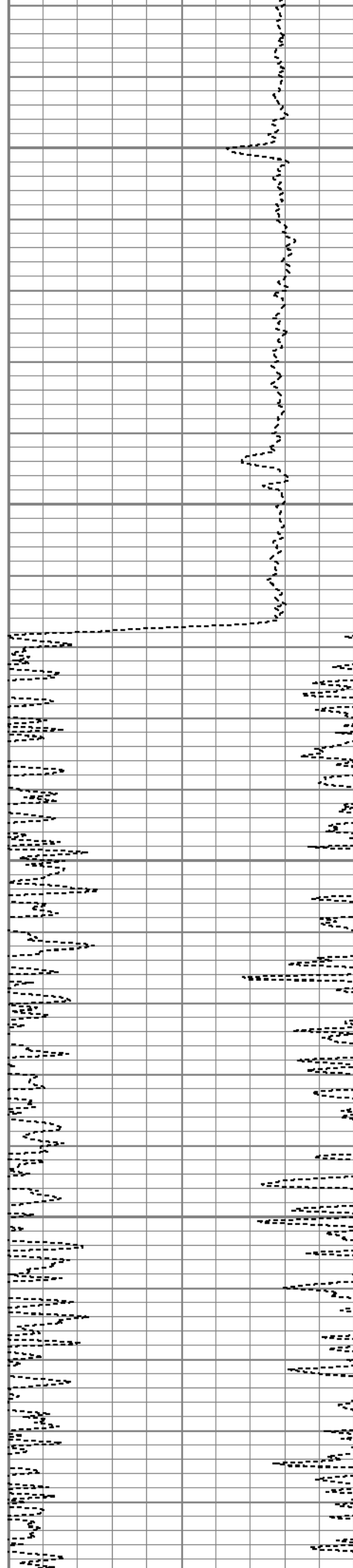


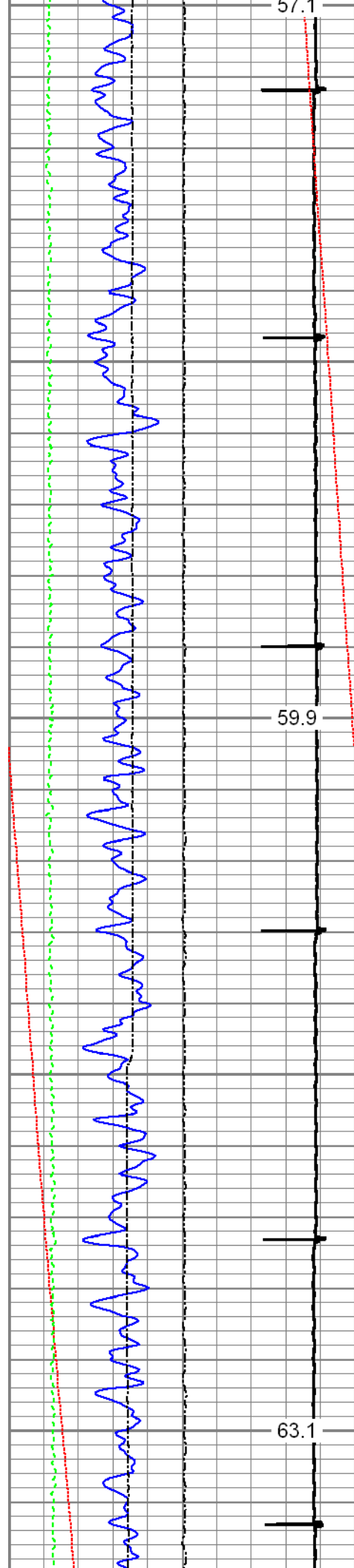


200

300

400

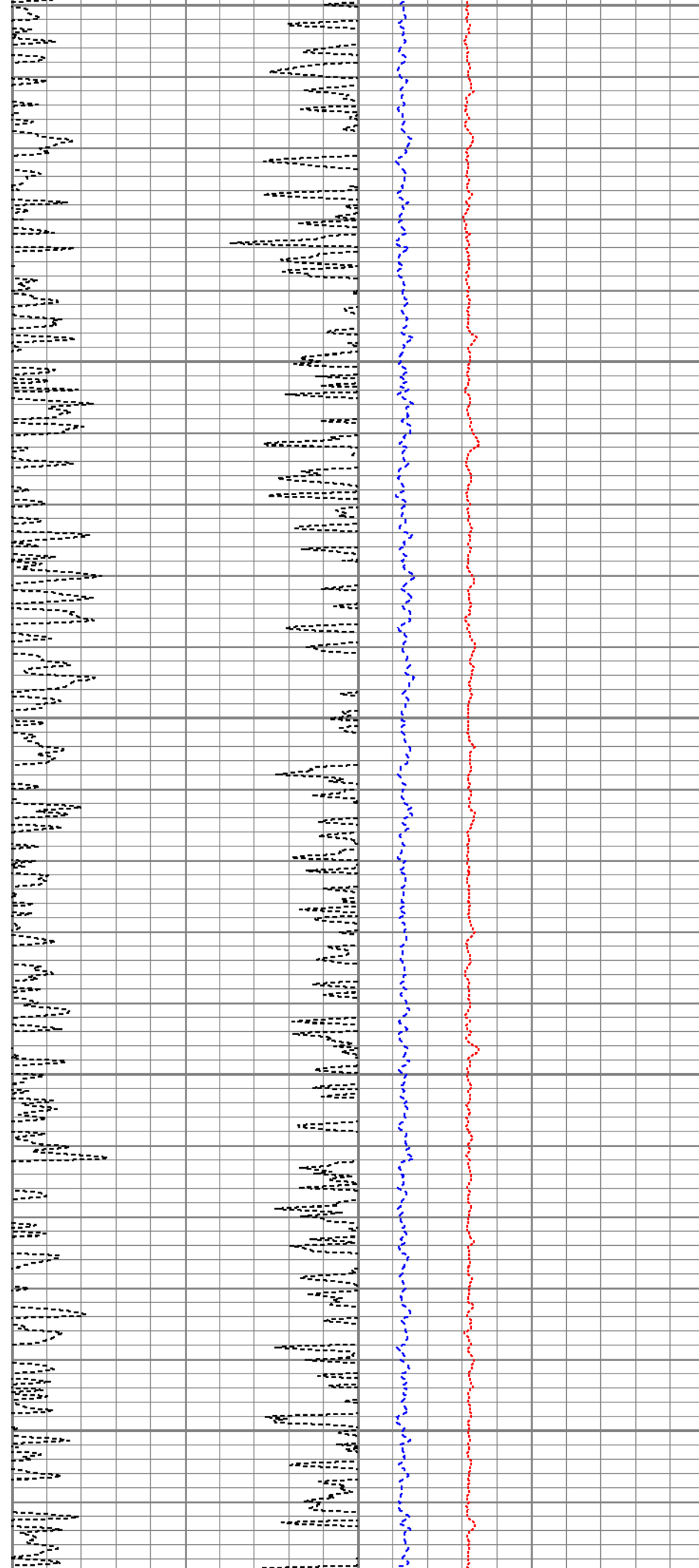


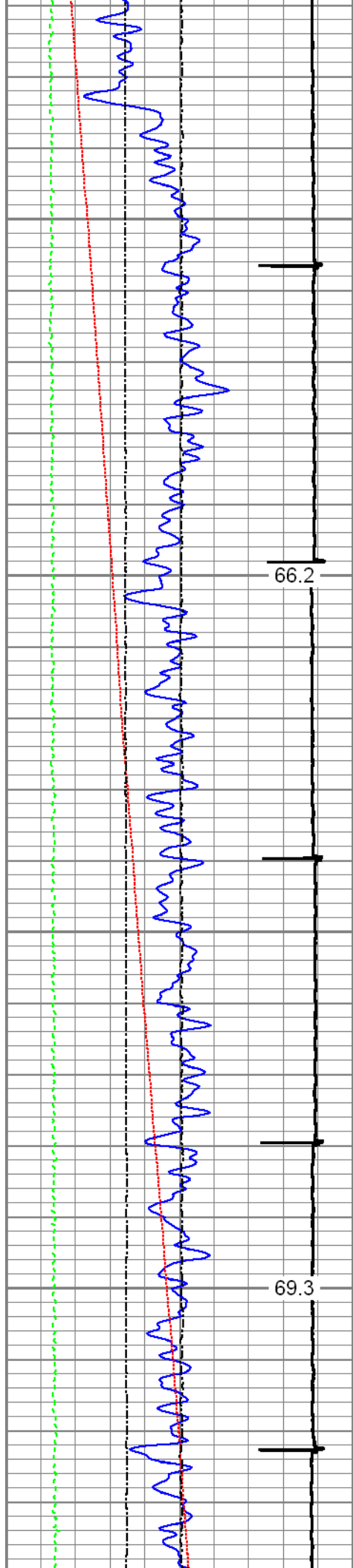


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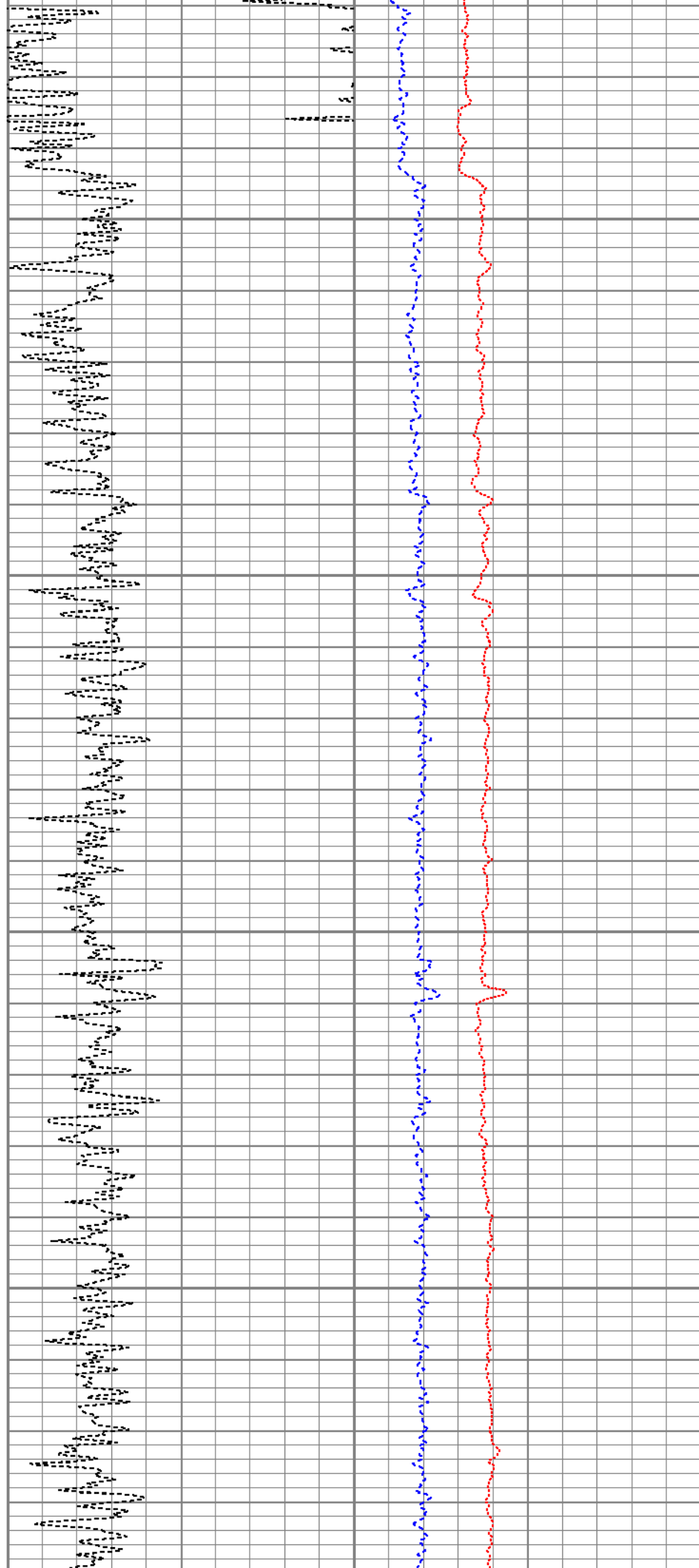
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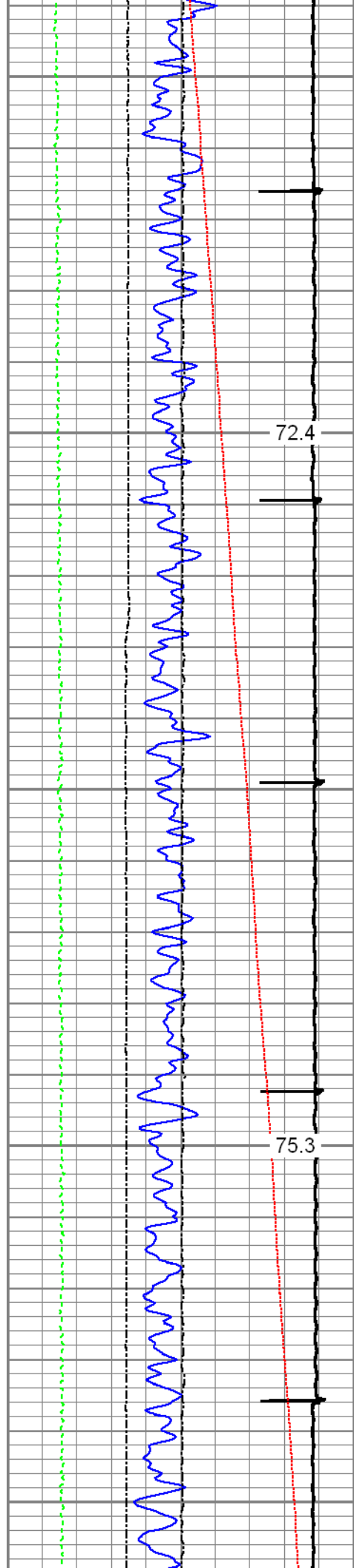




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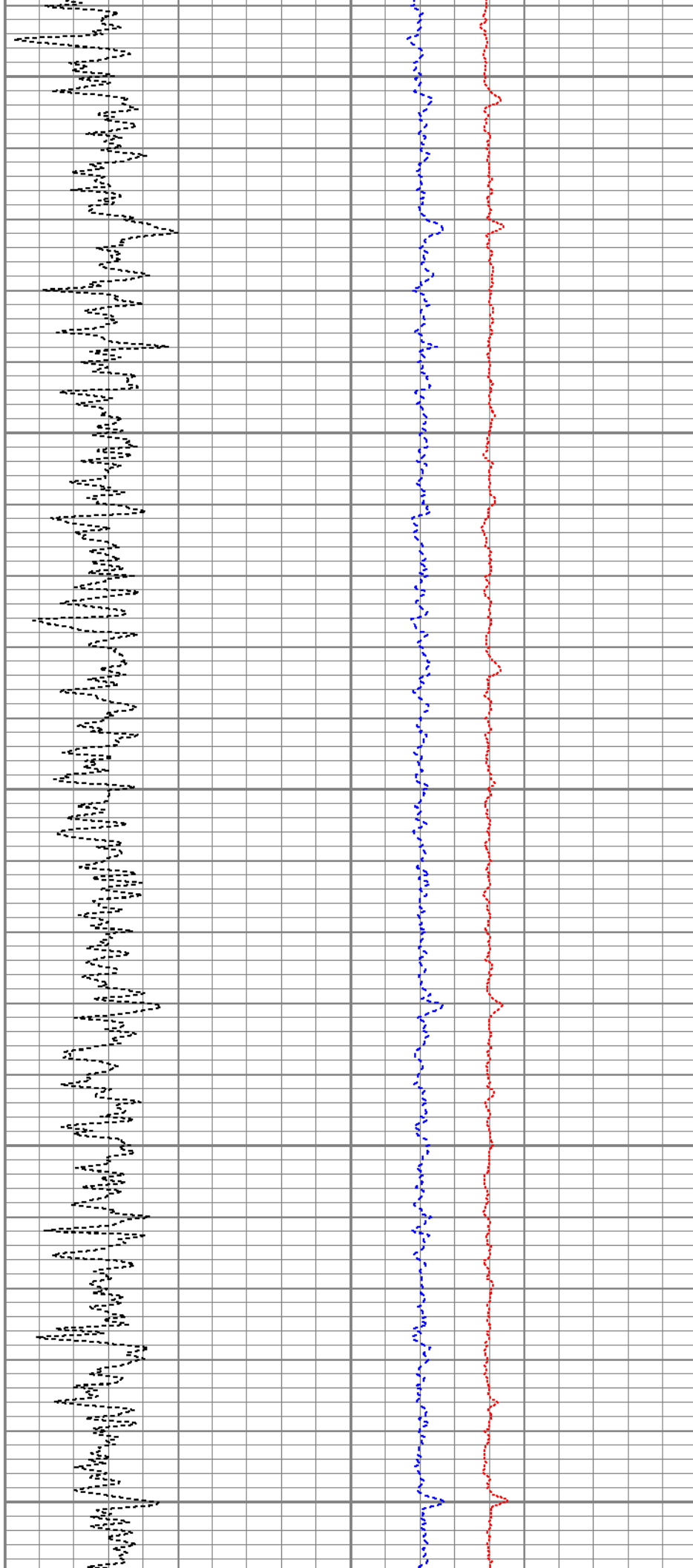
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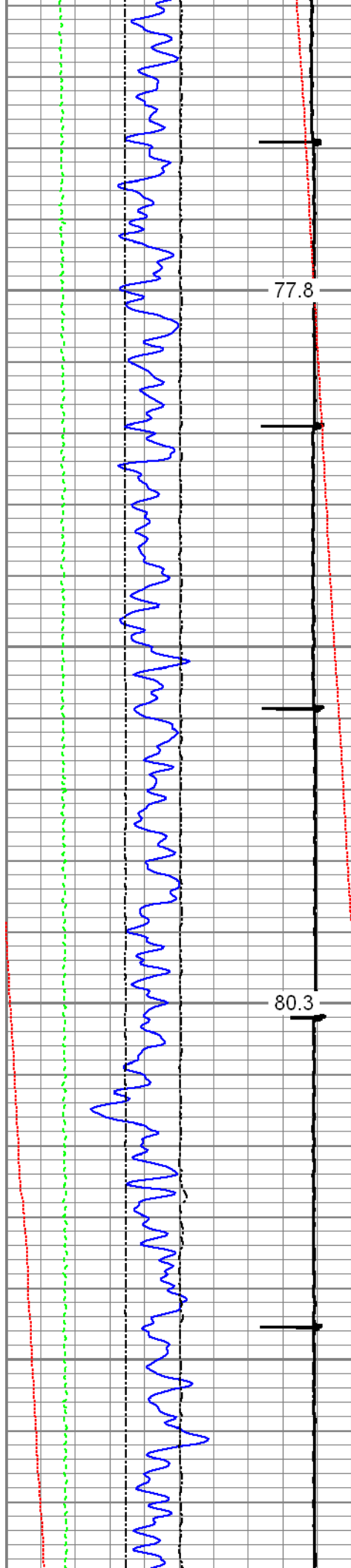




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1000



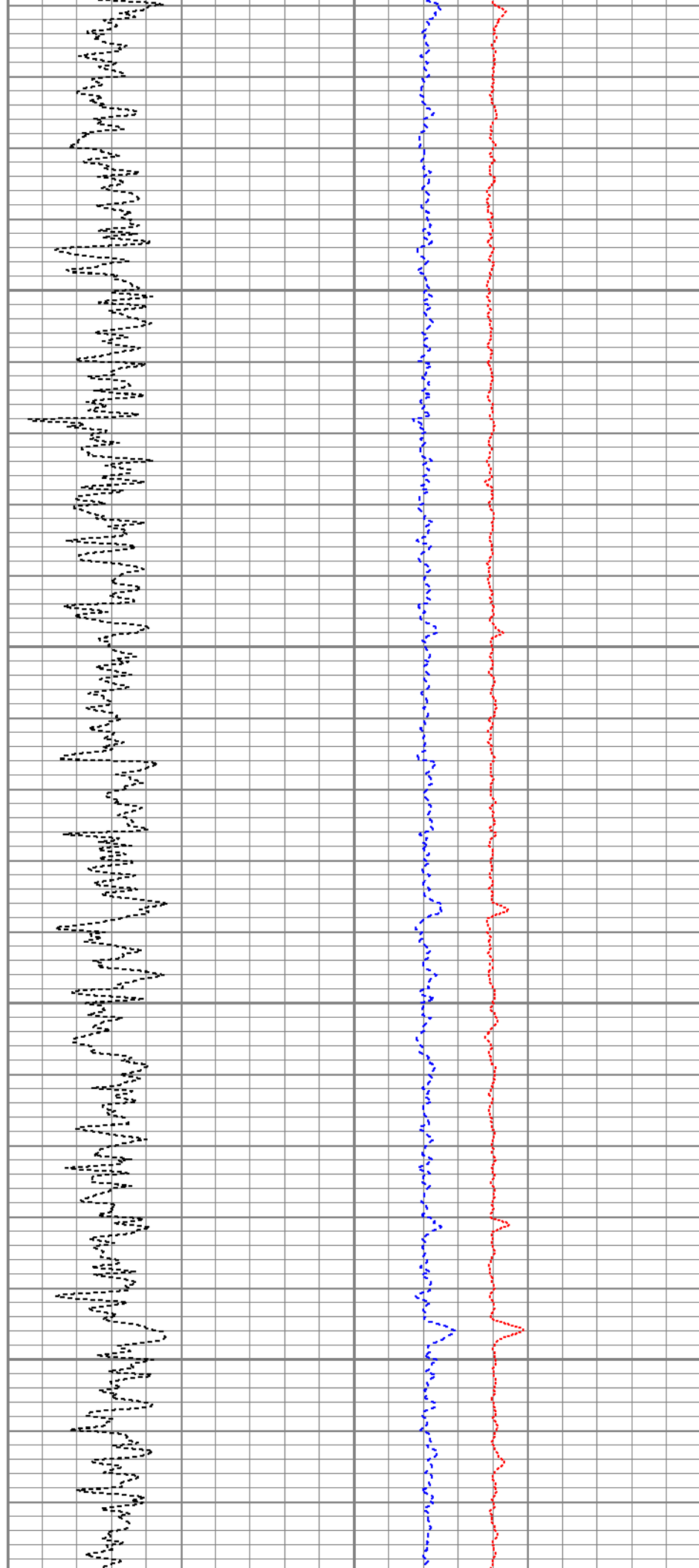


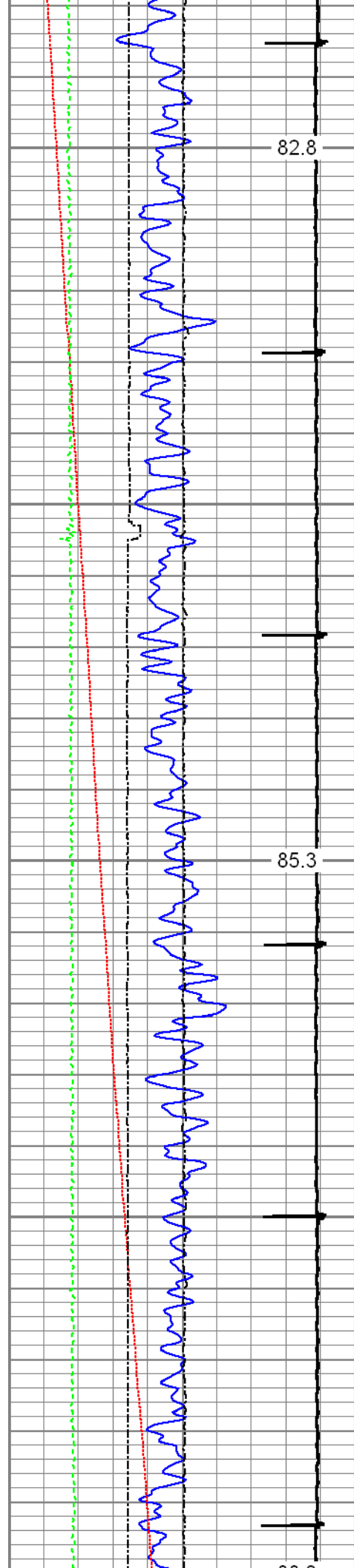
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80.3

1200





82.8

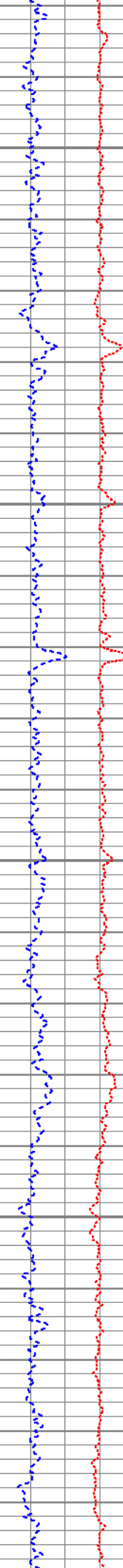
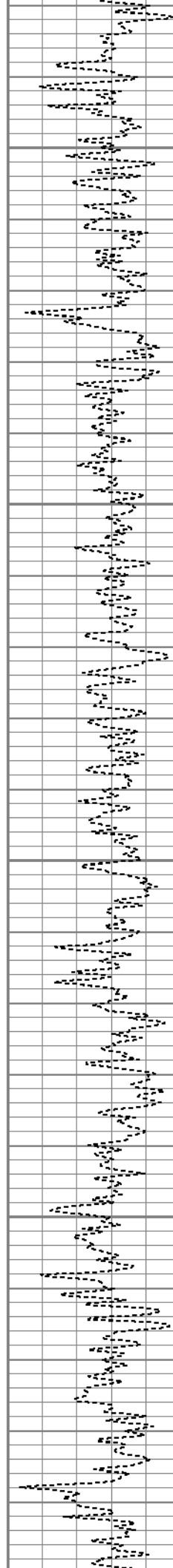
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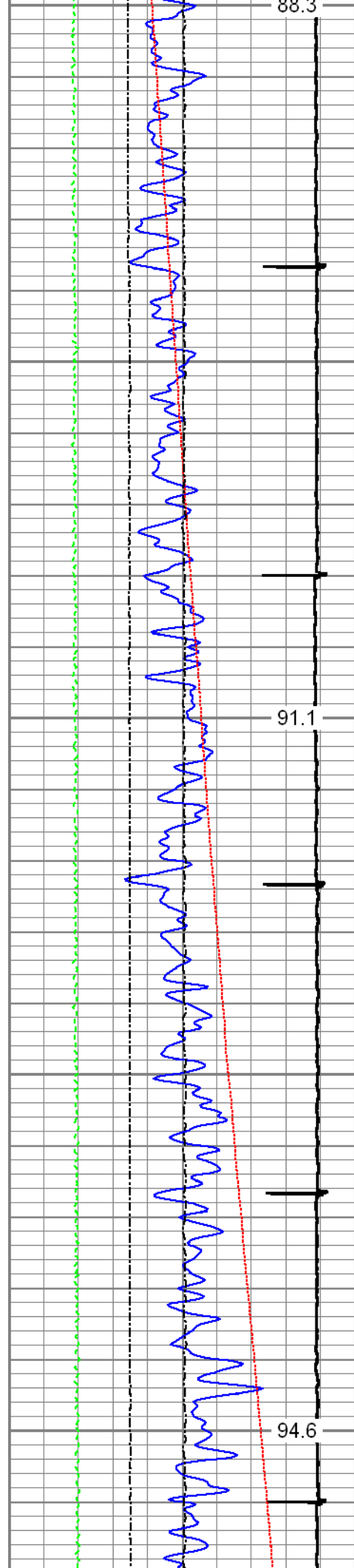
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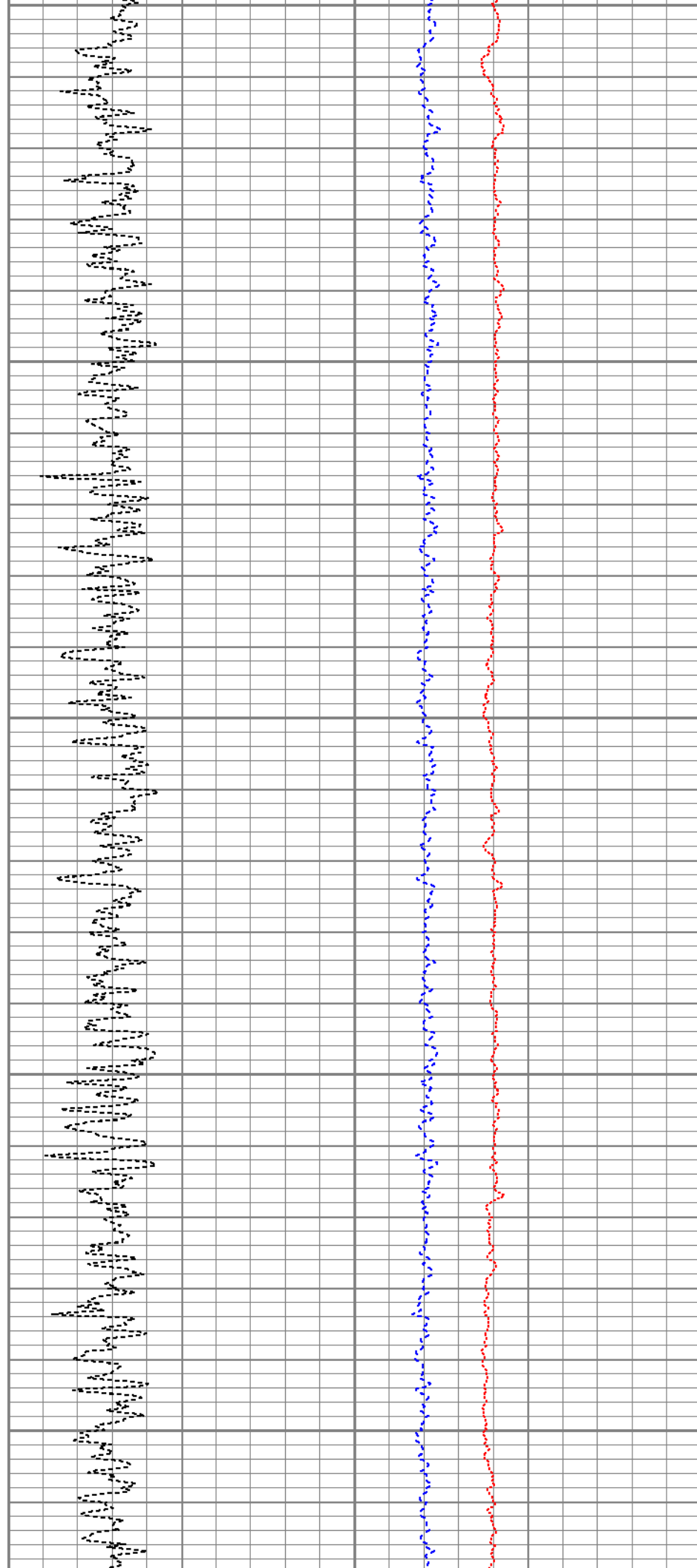


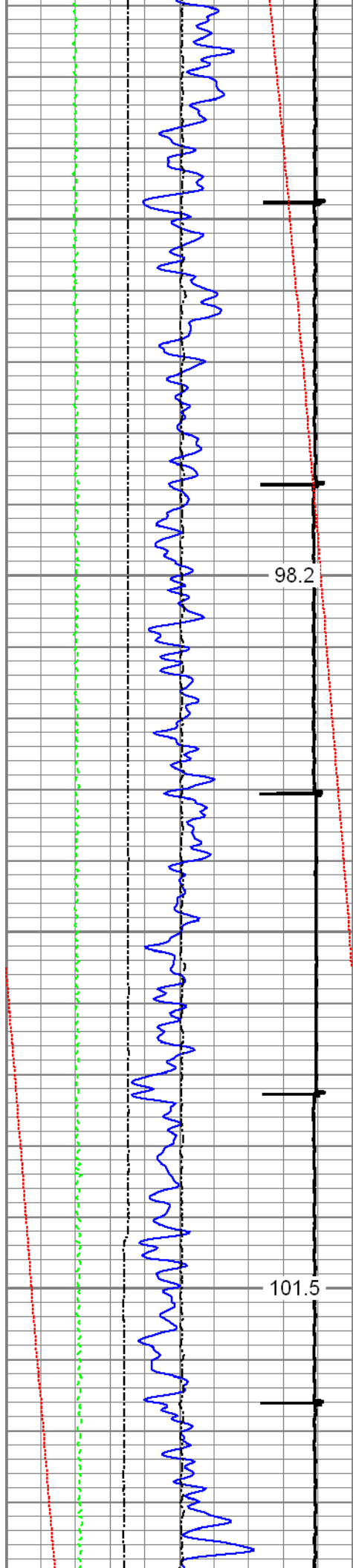


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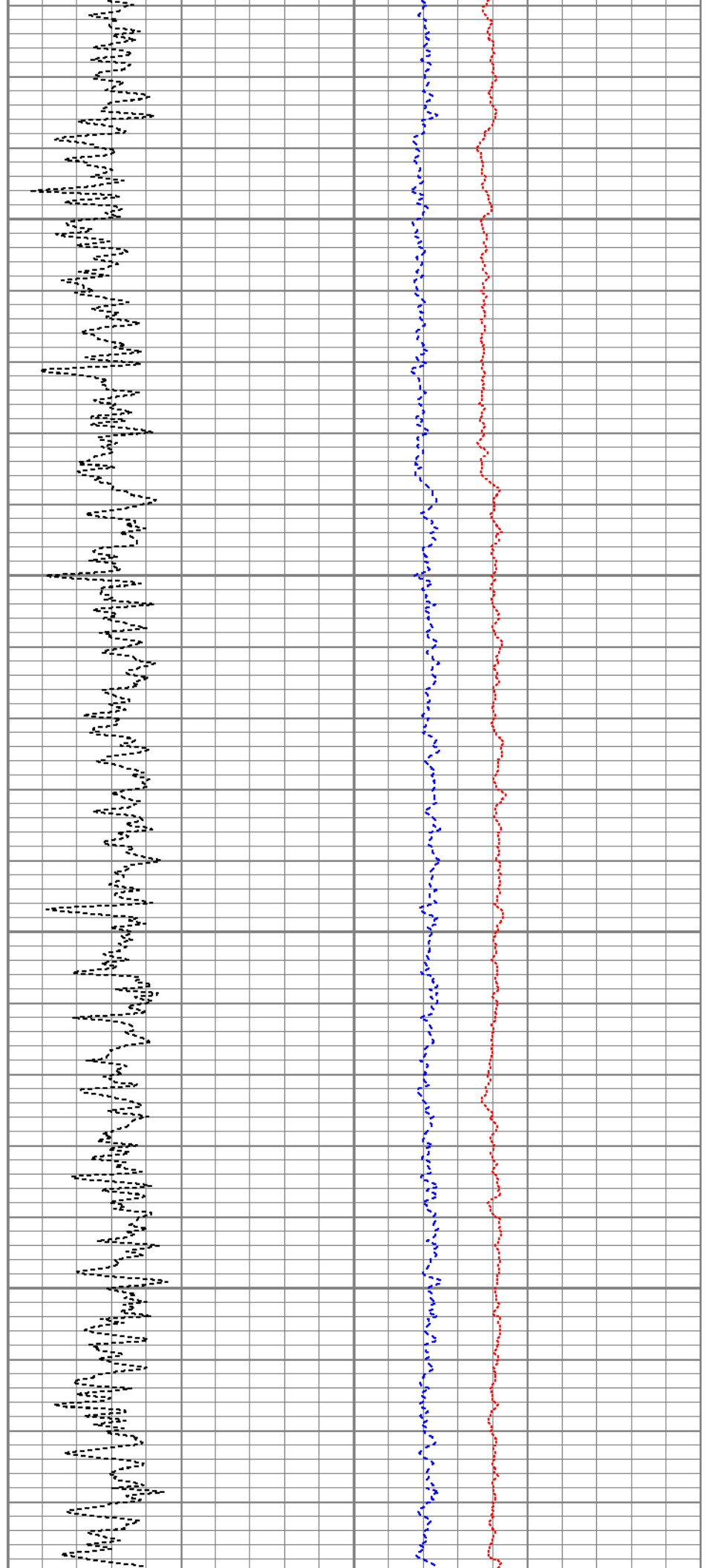
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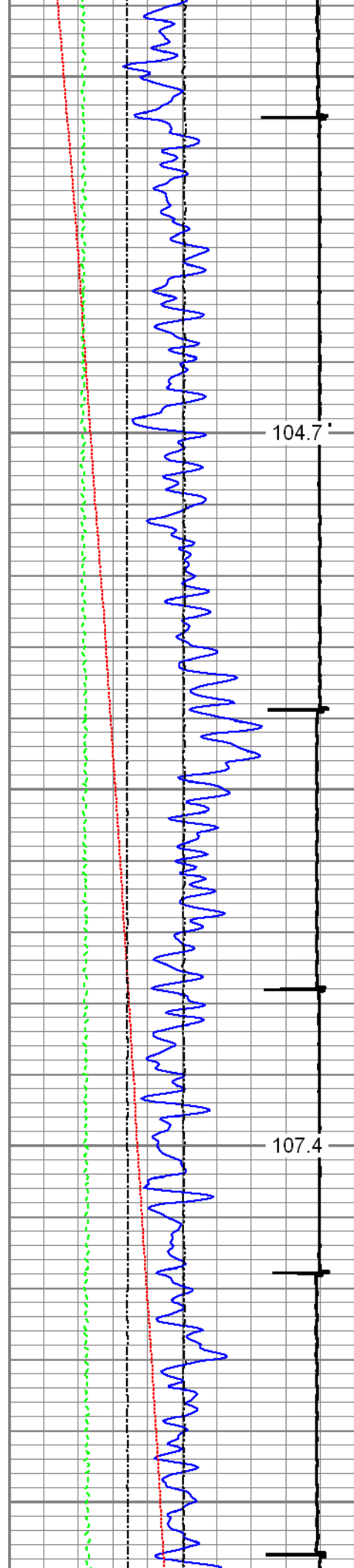




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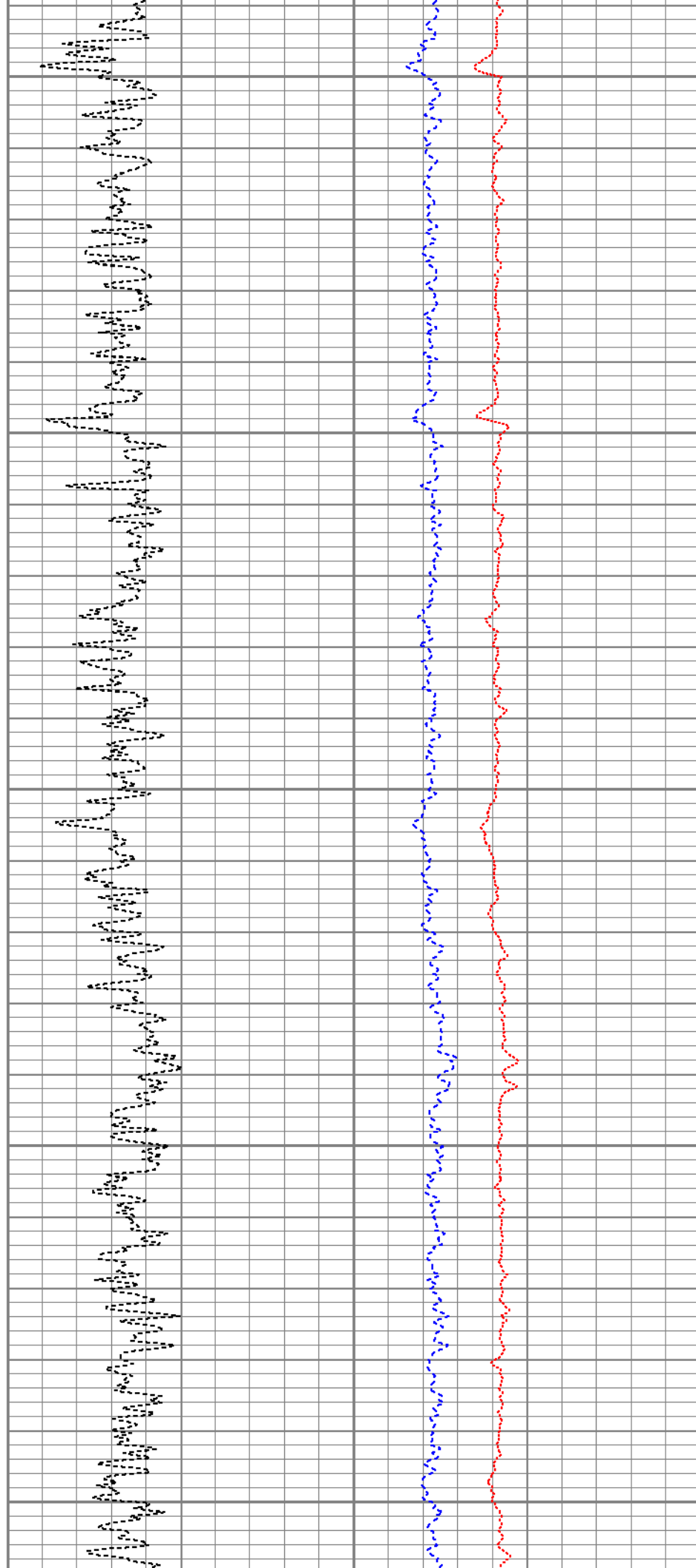
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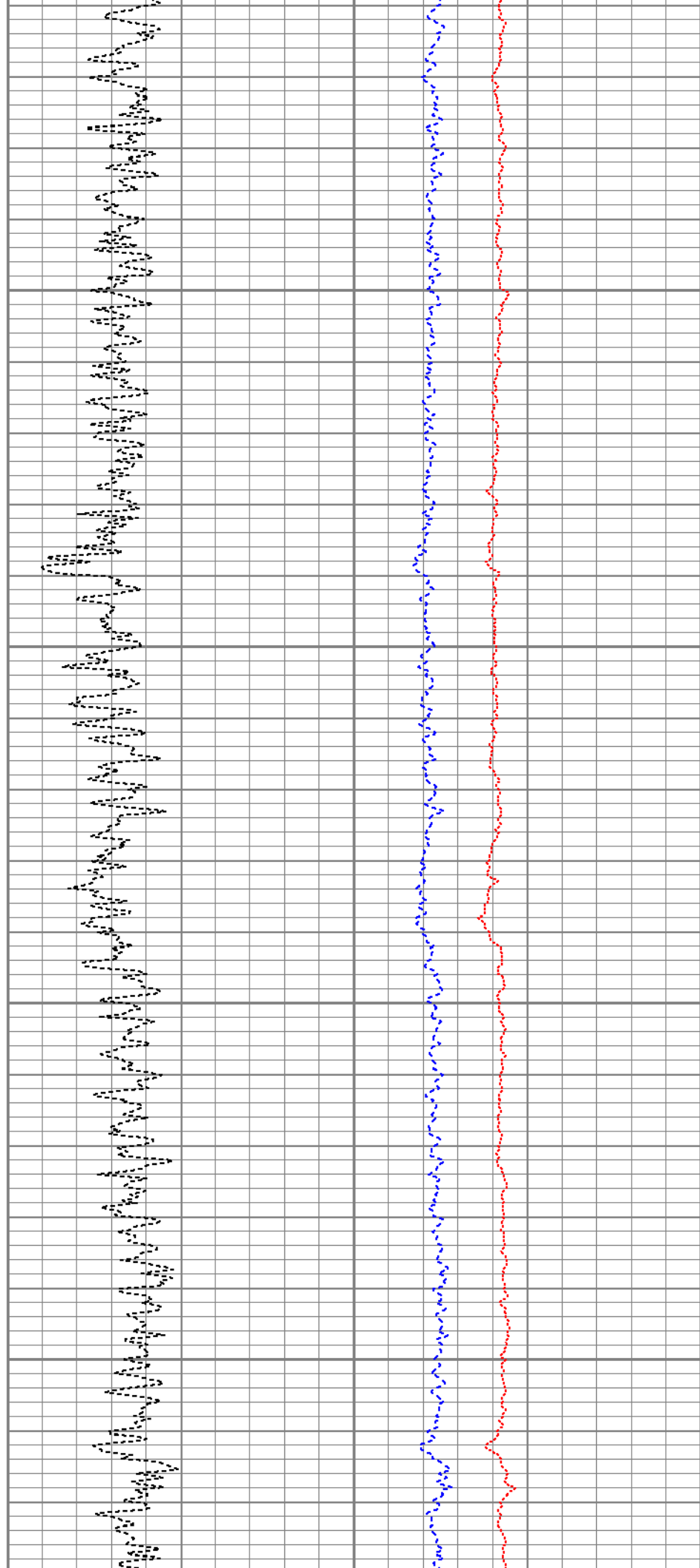
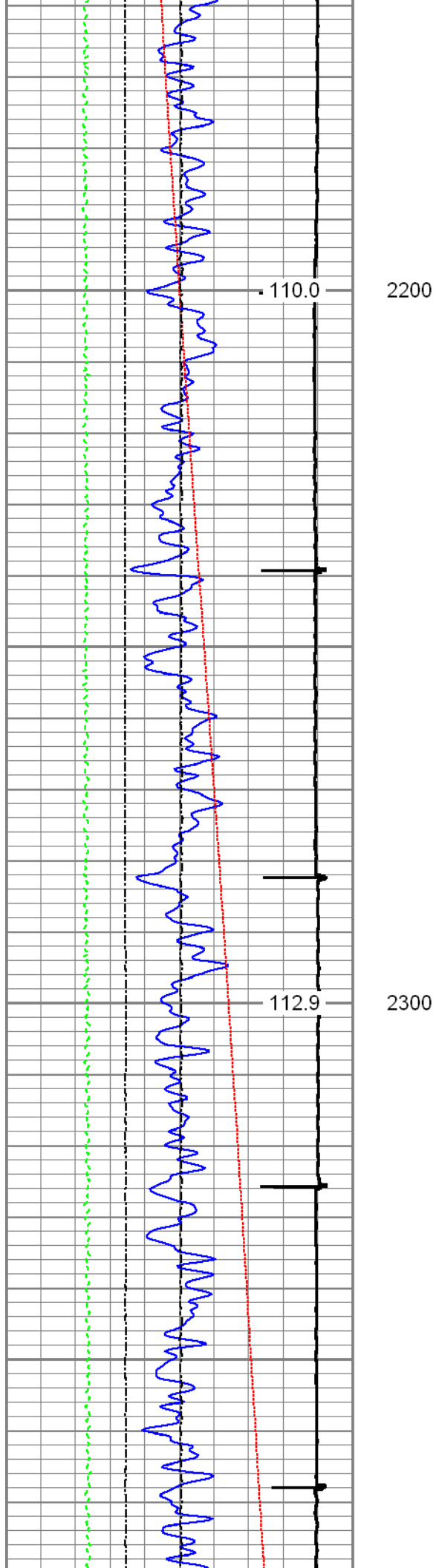


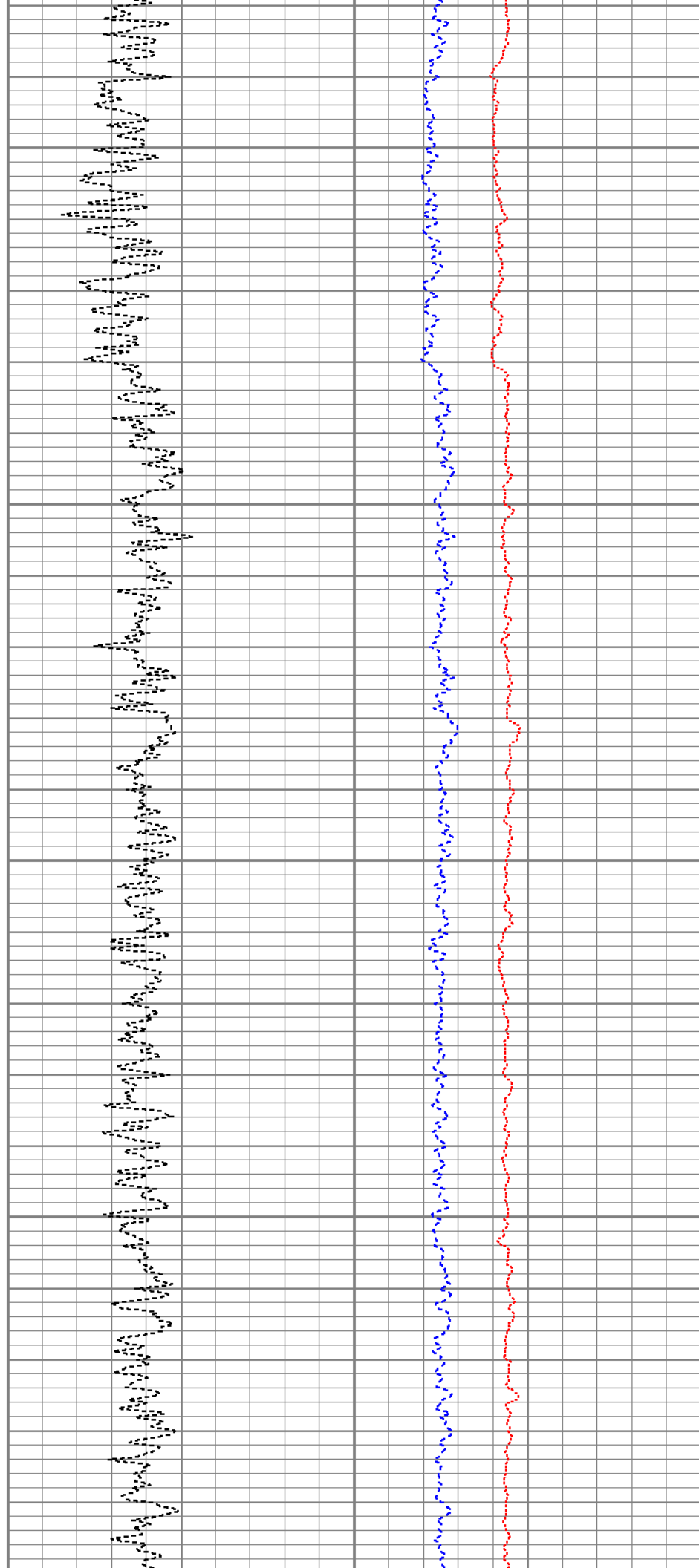
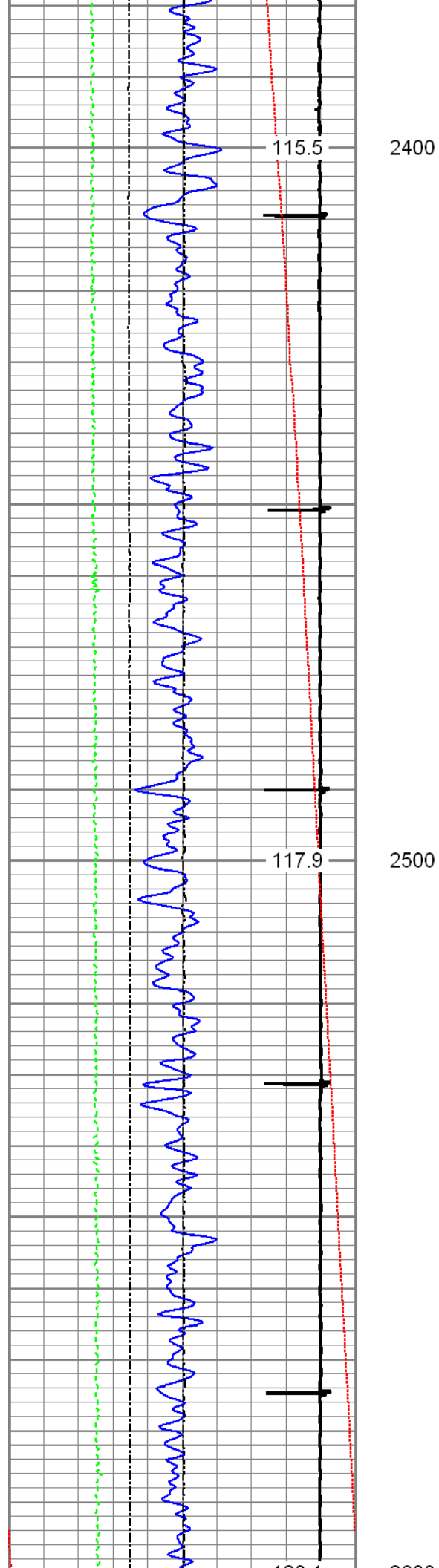


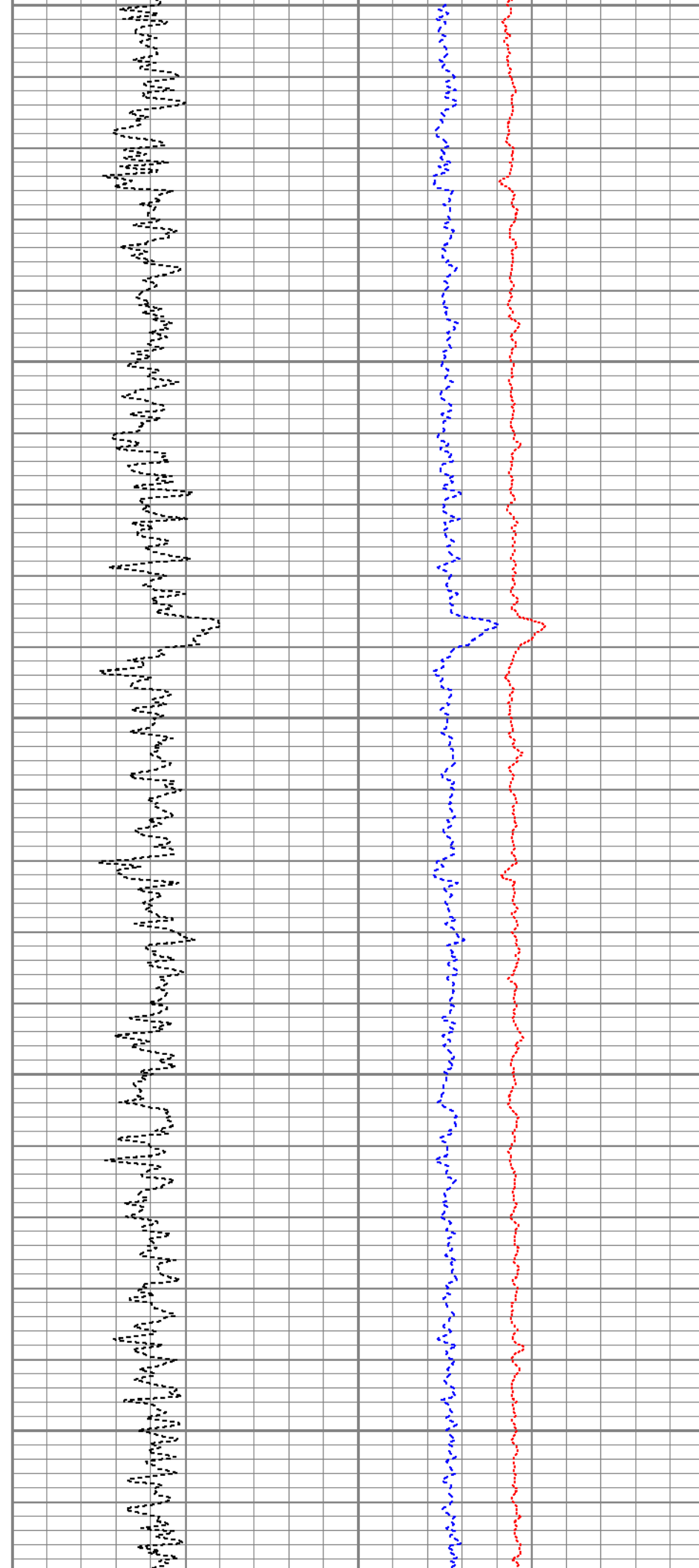
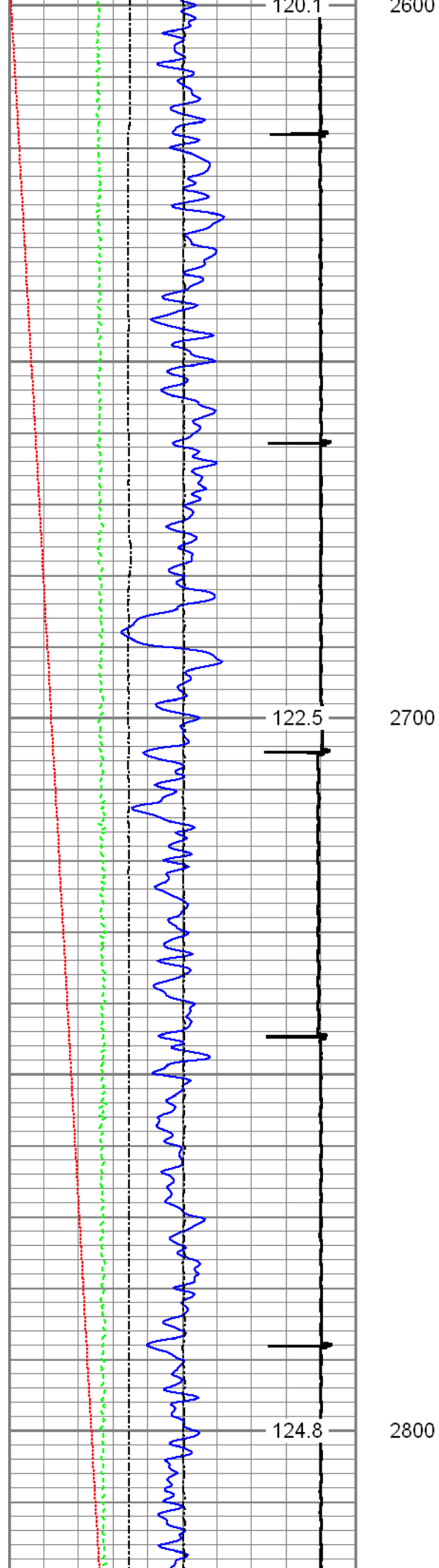
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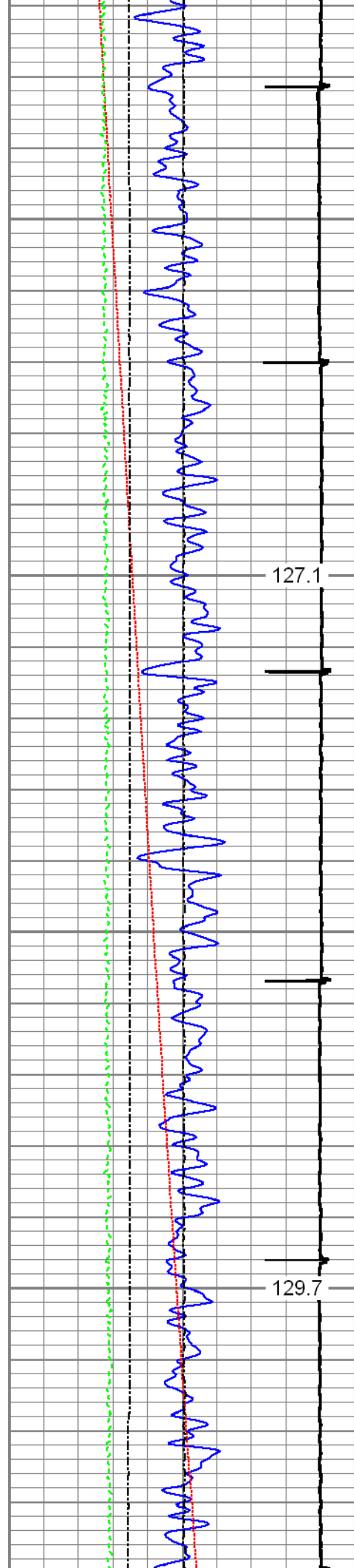
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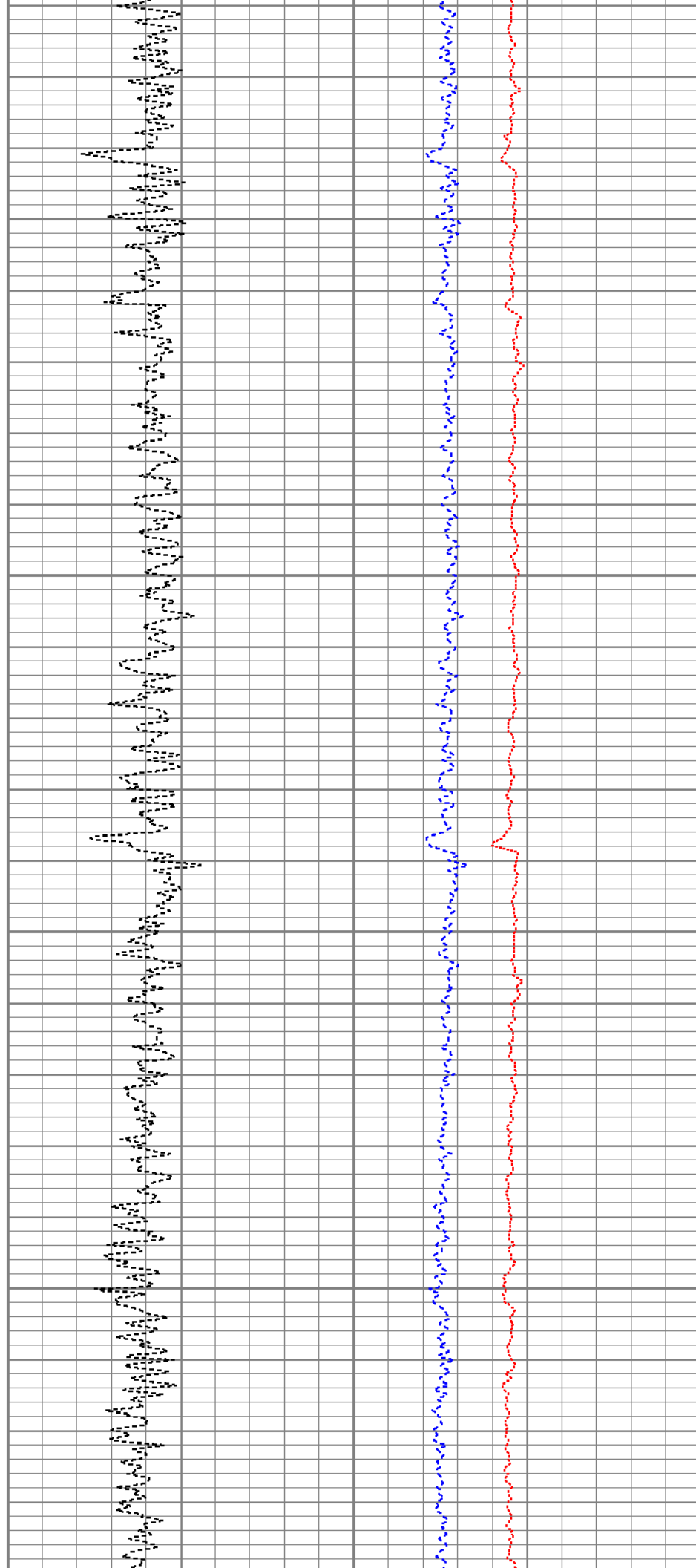


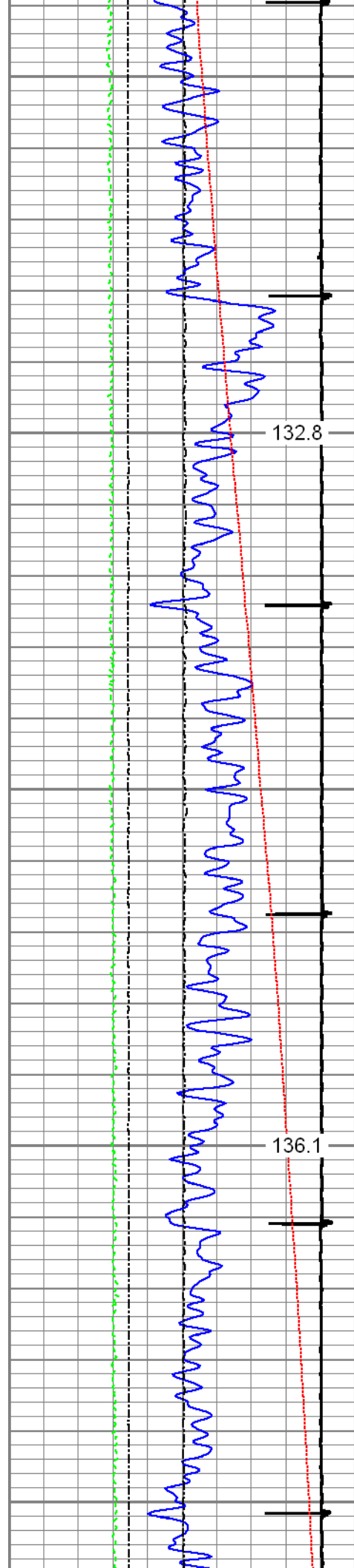




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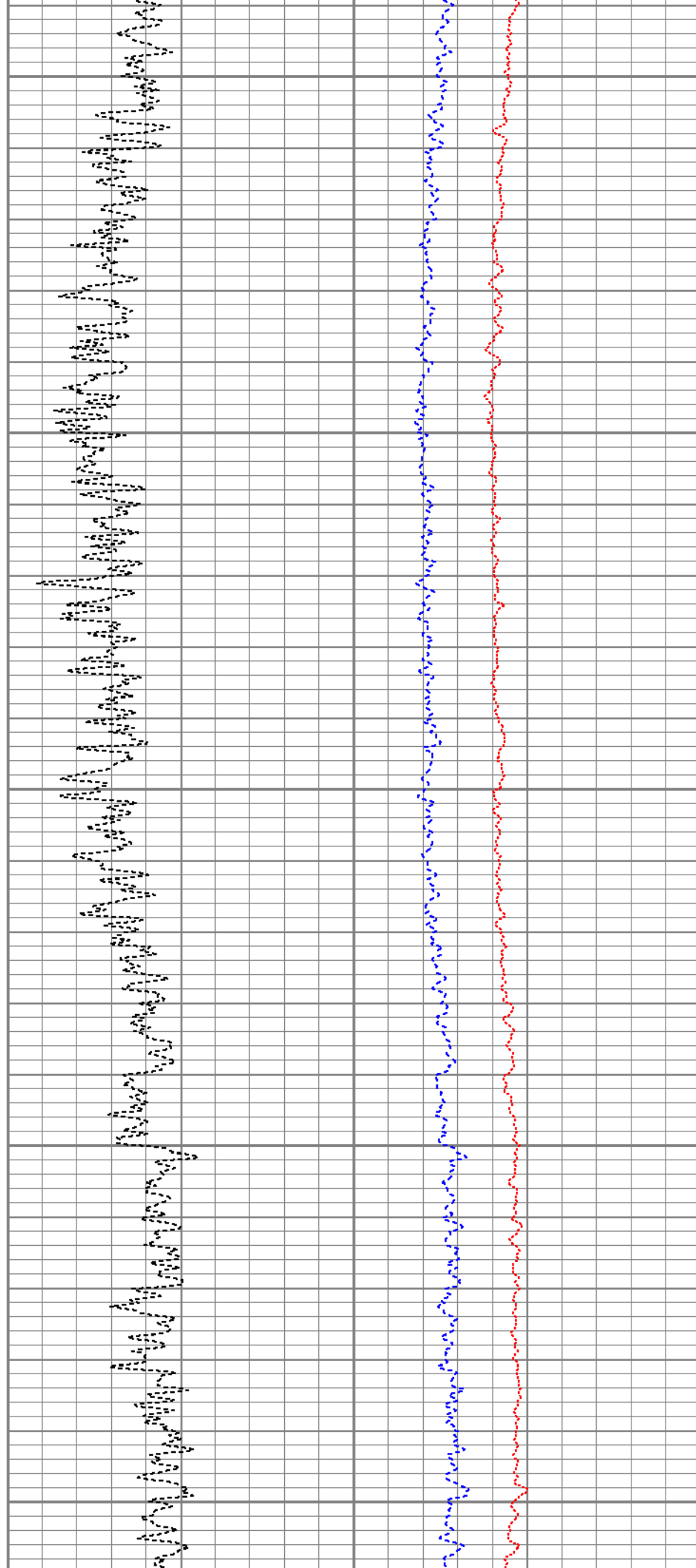
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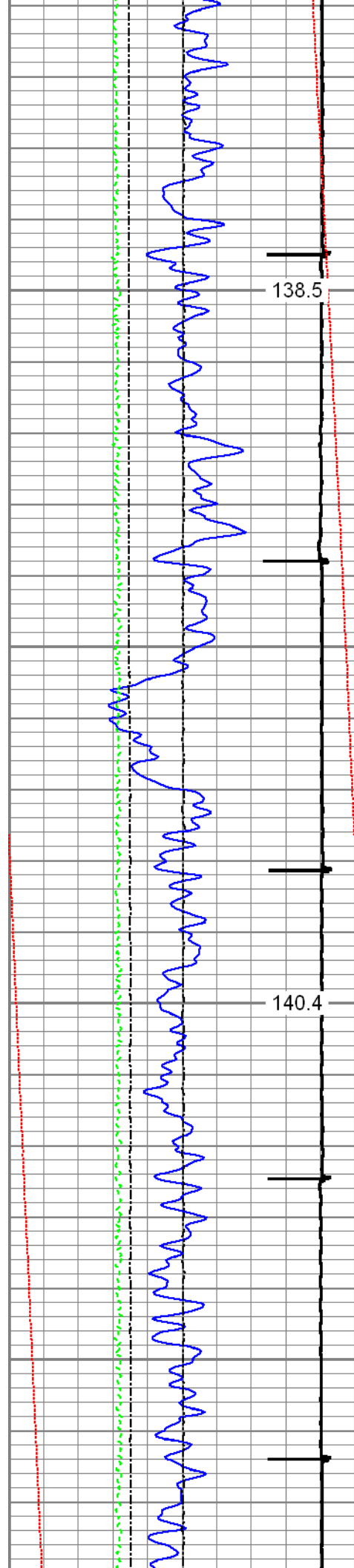


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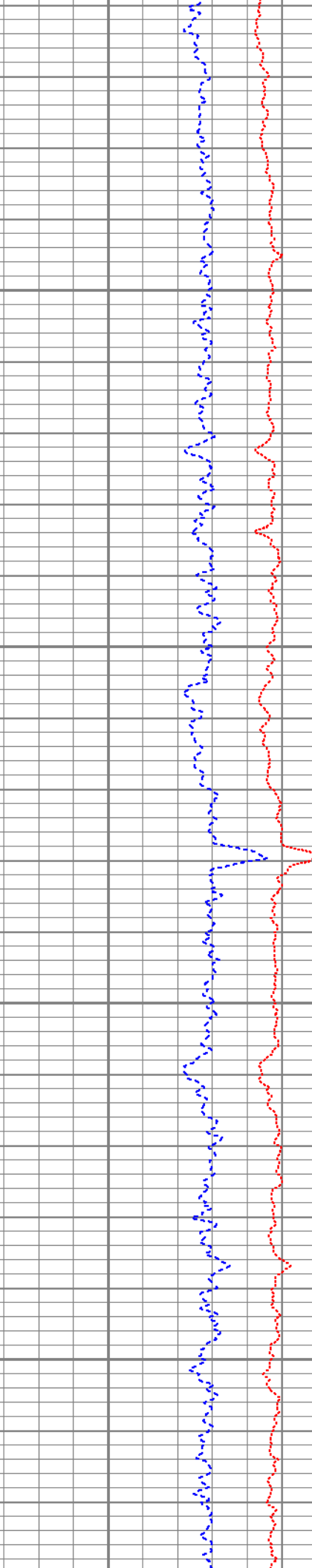
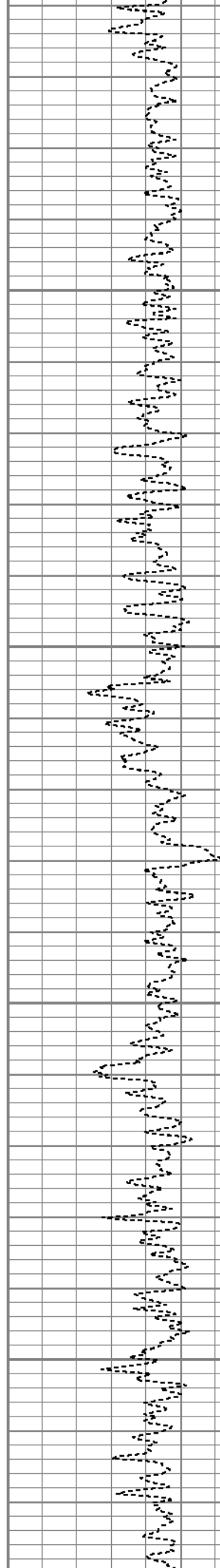


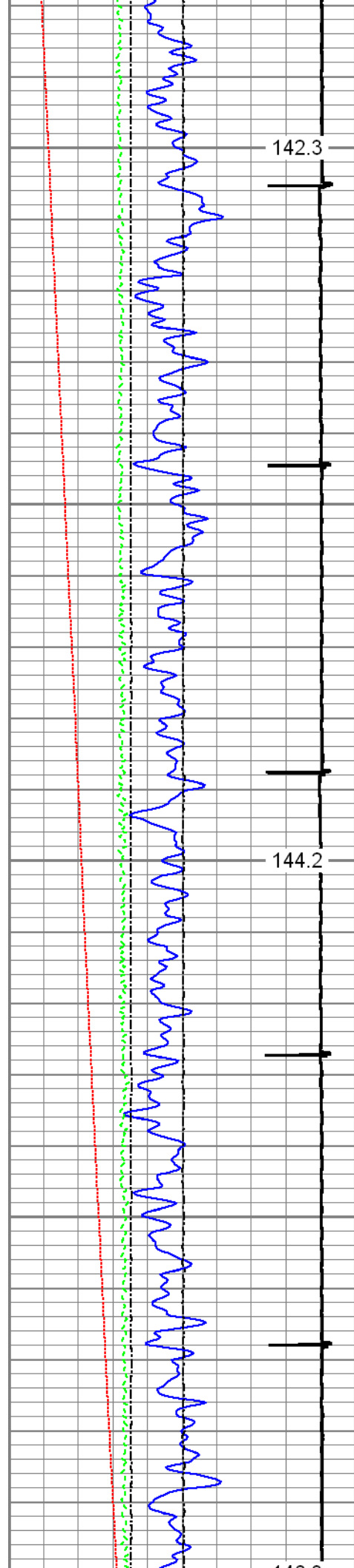




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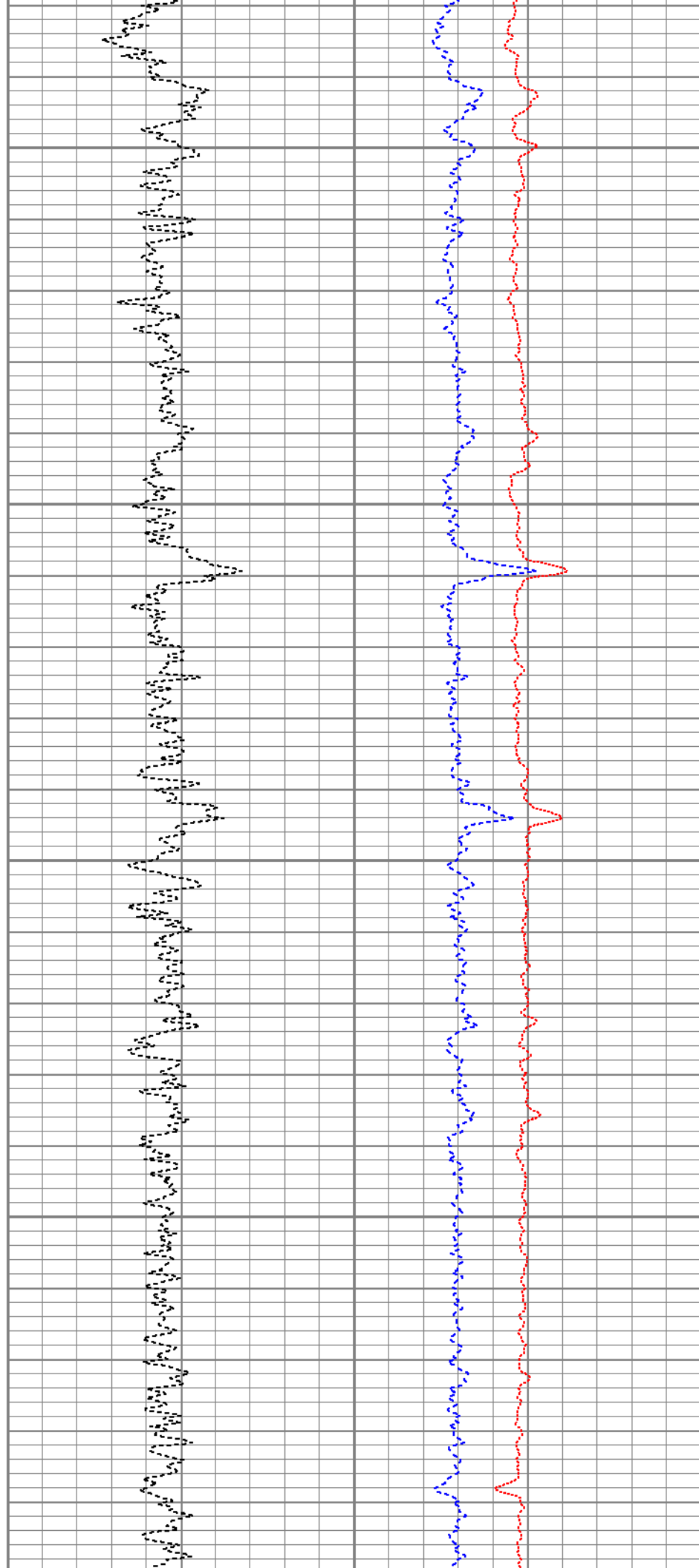


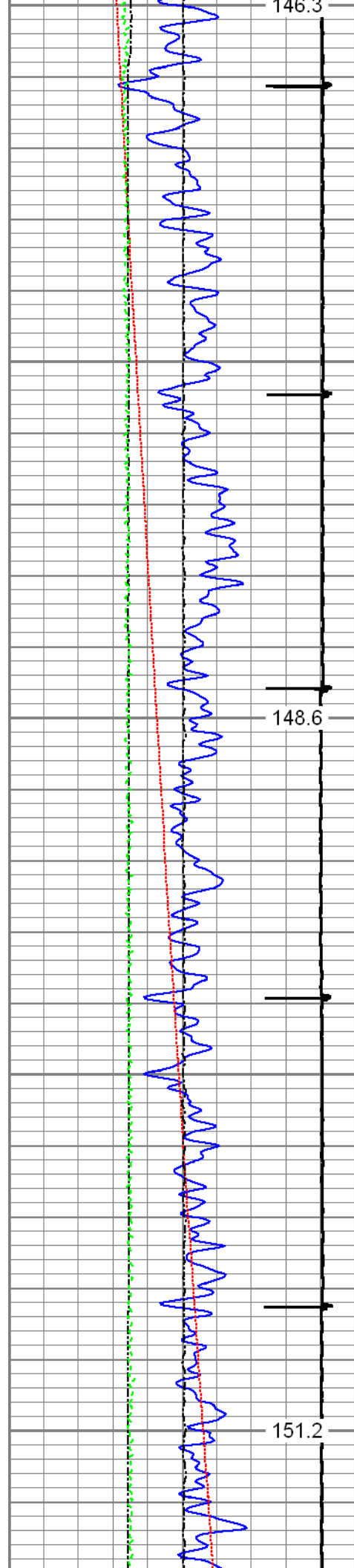


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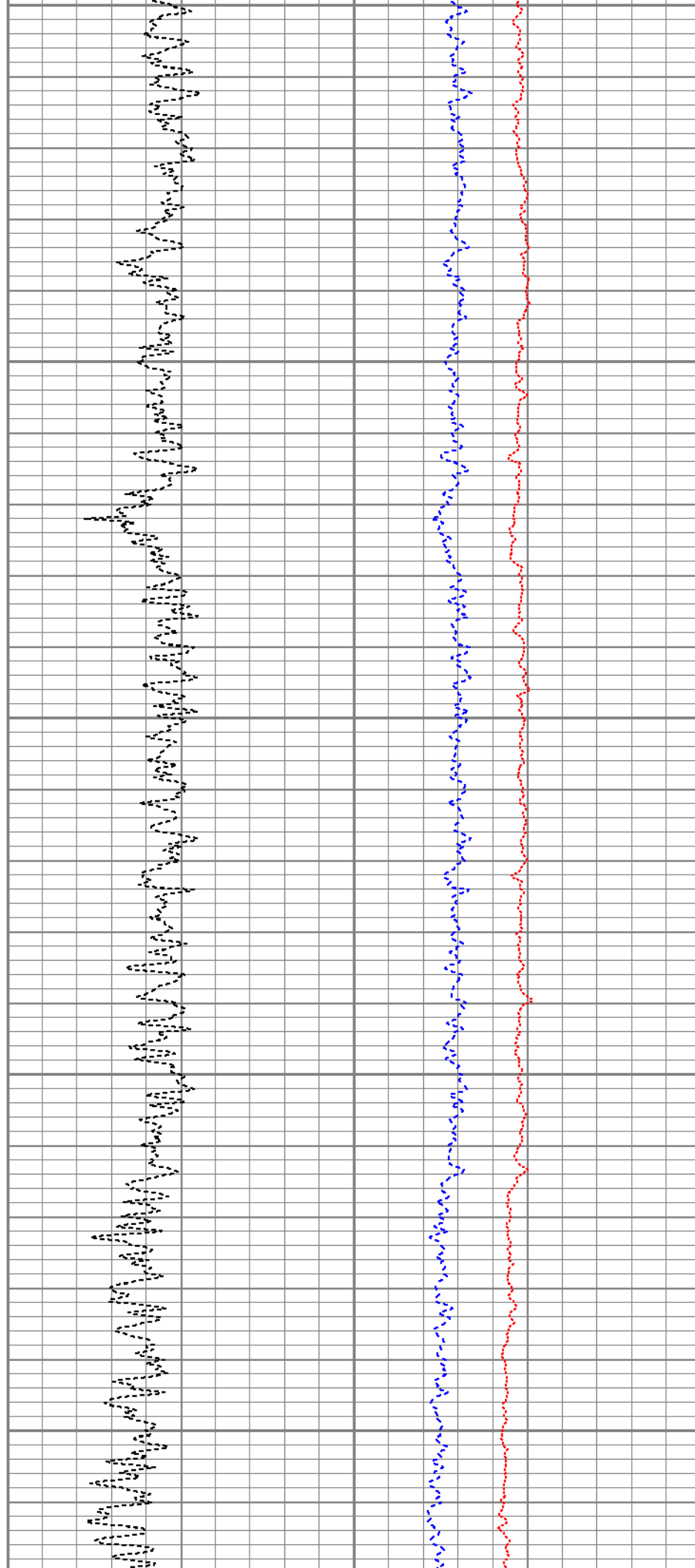


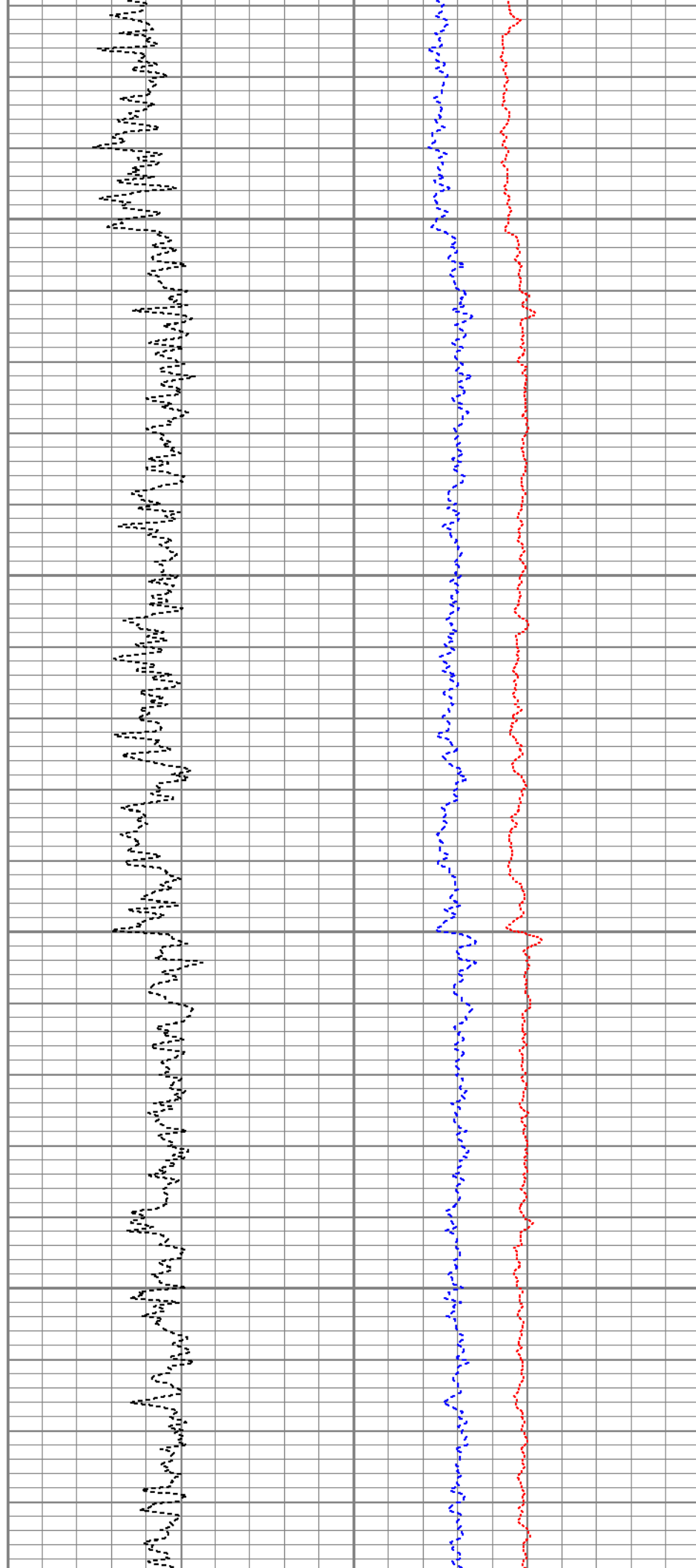
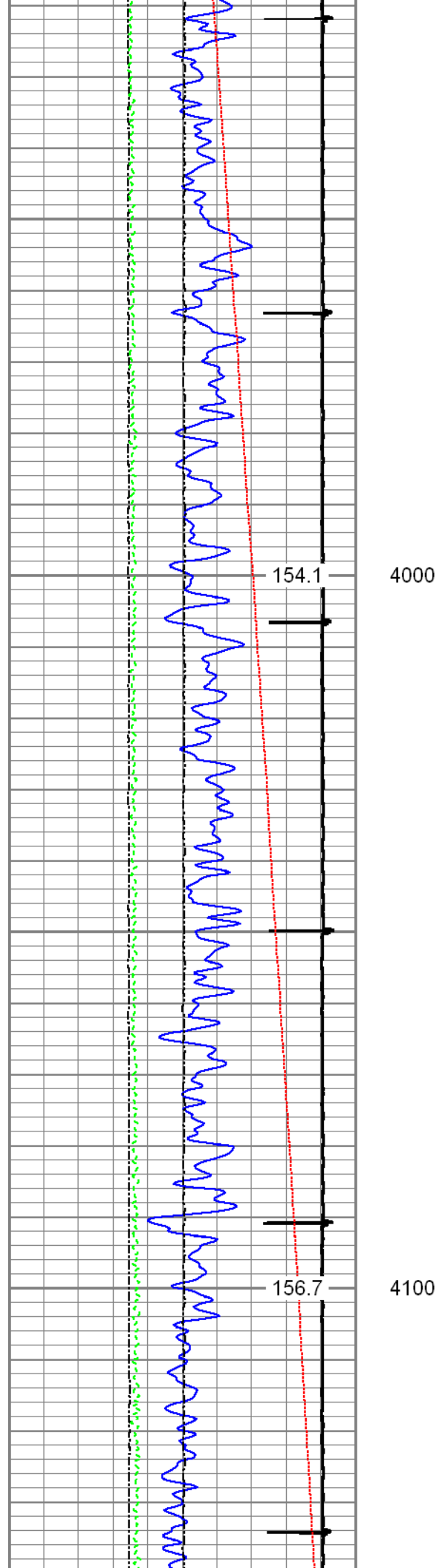


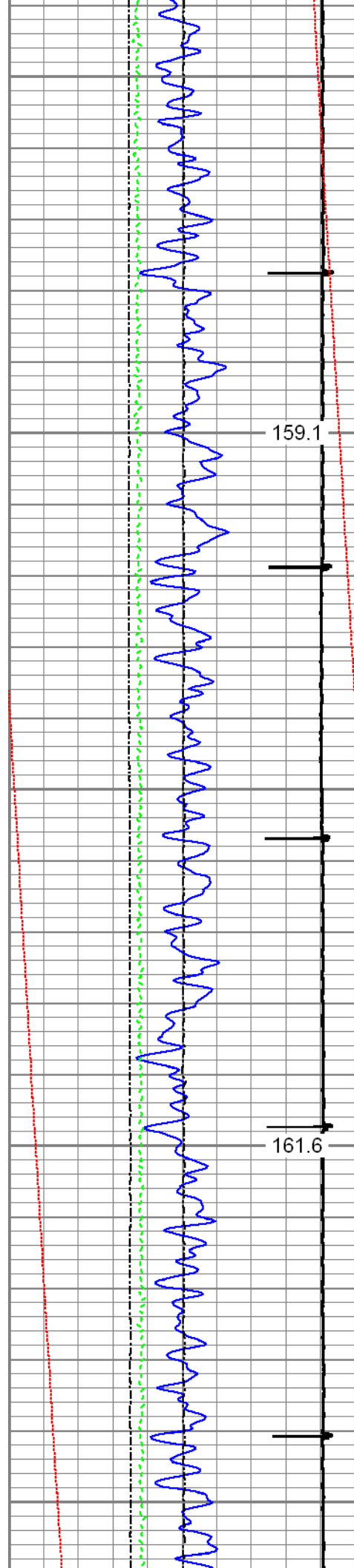
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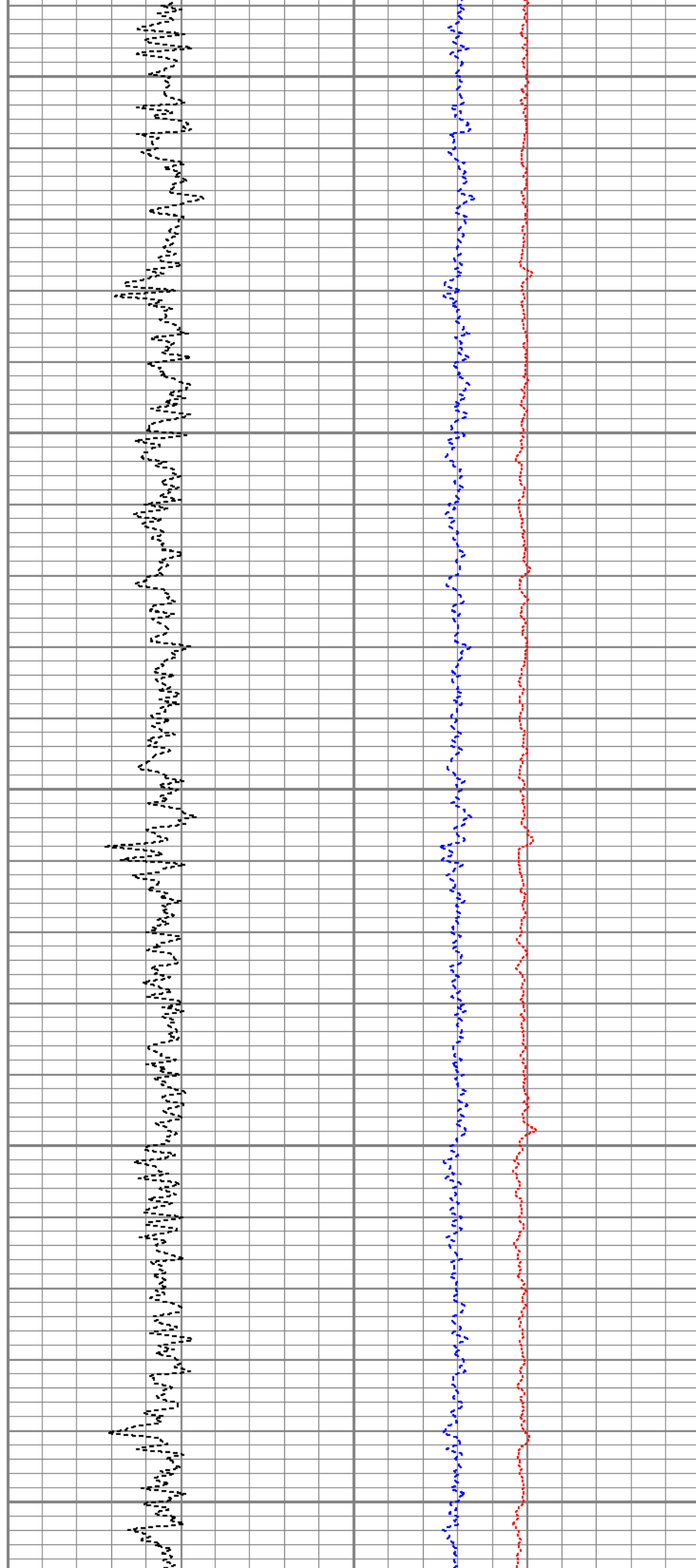


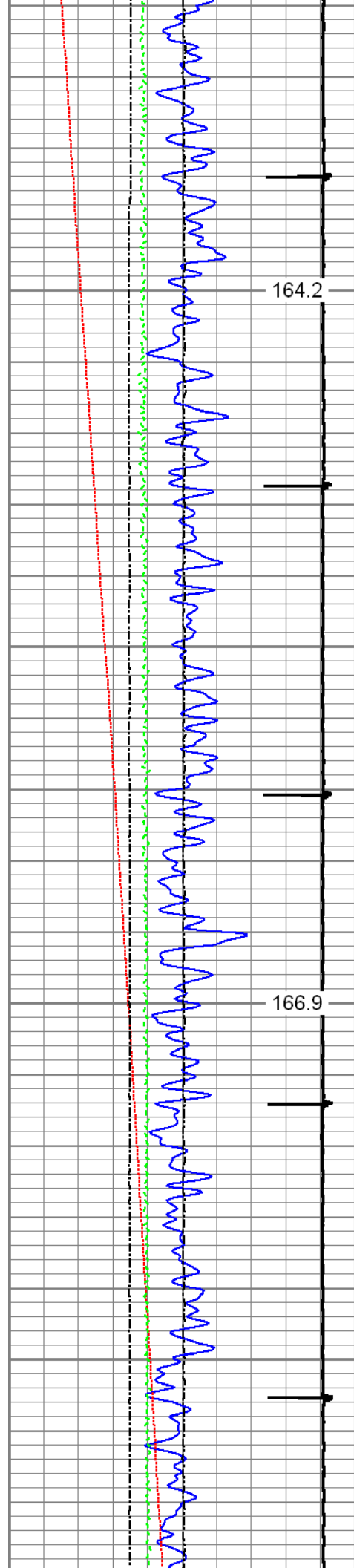
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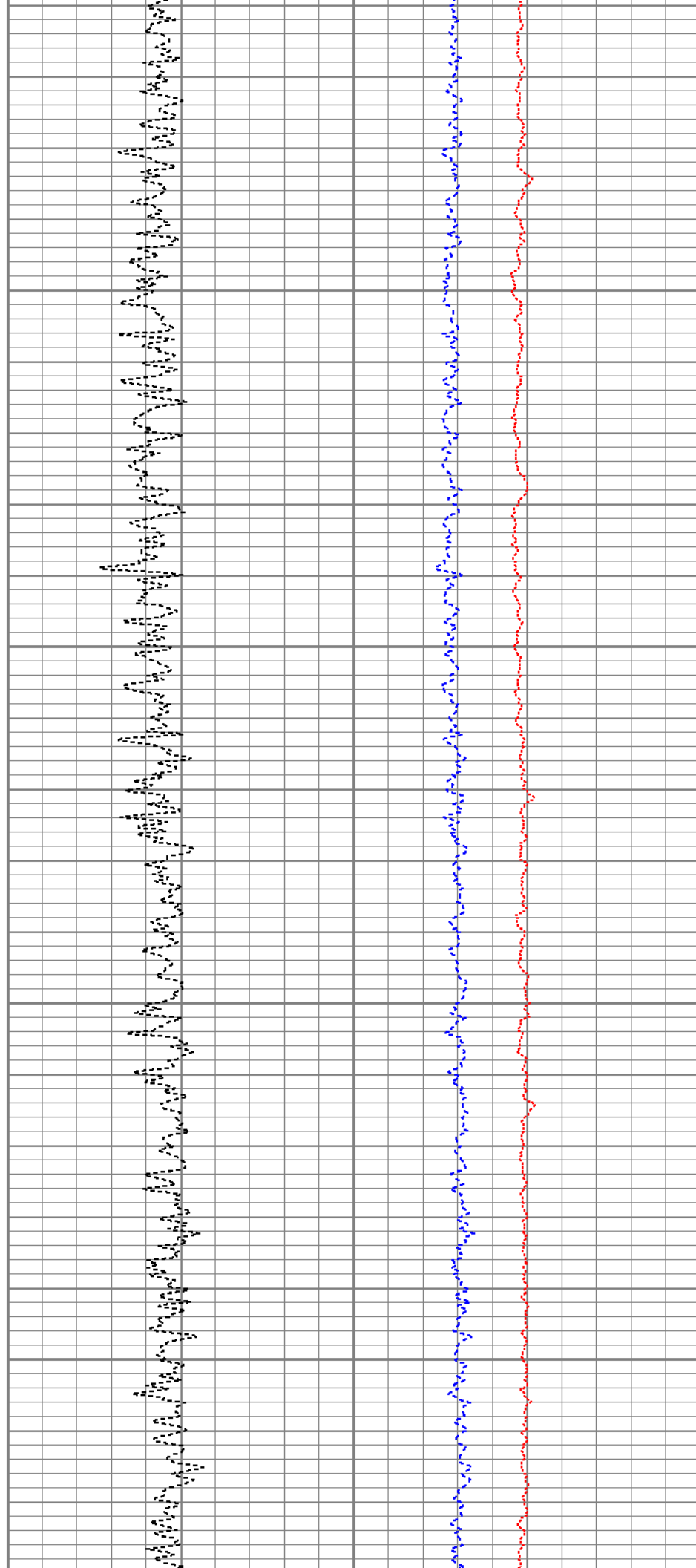
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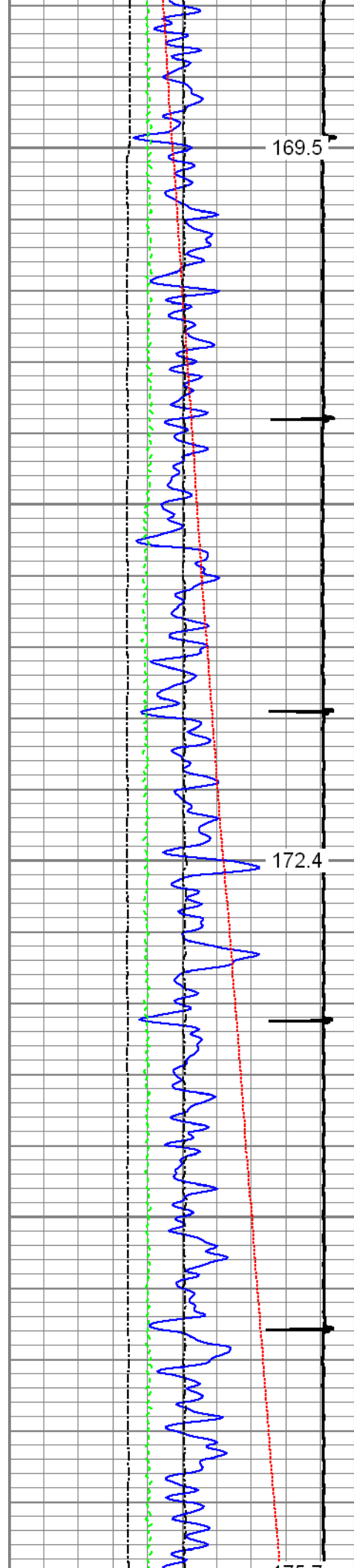




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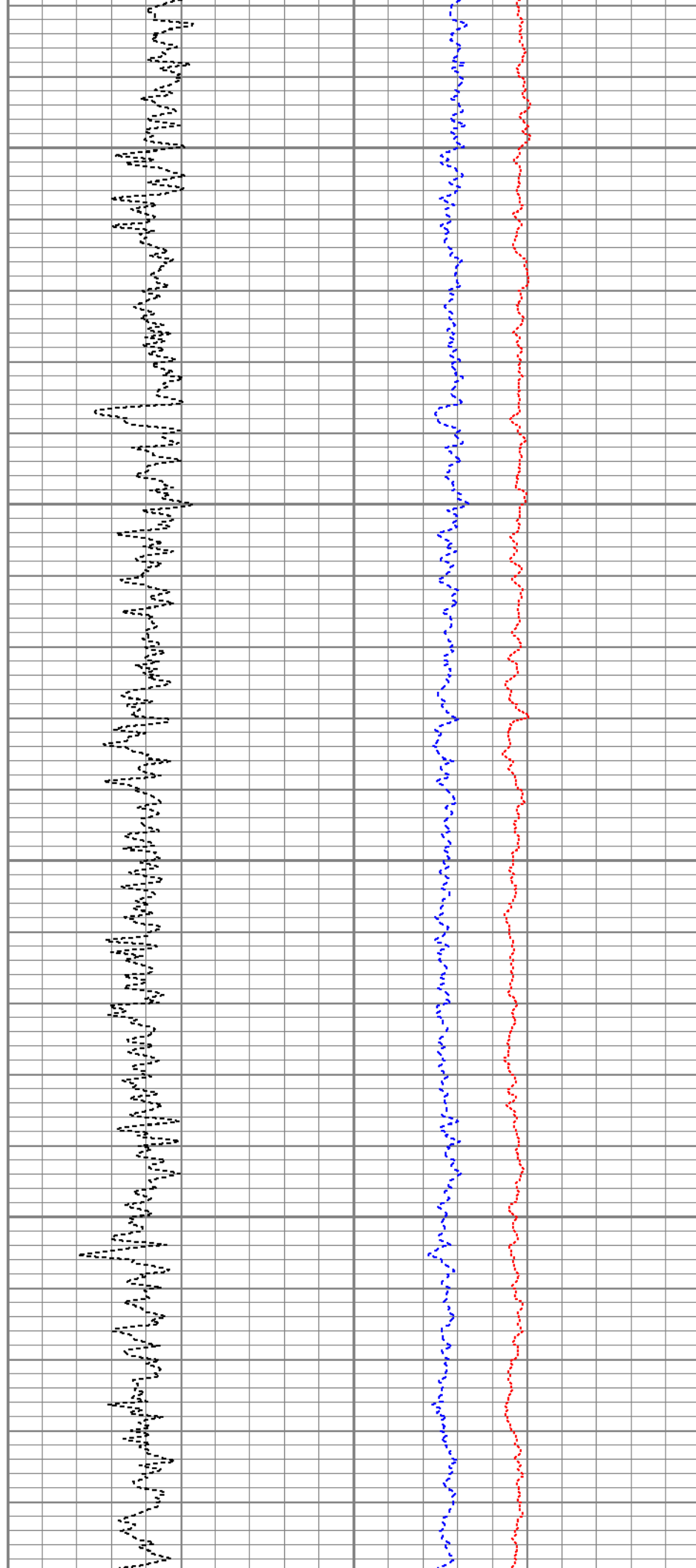


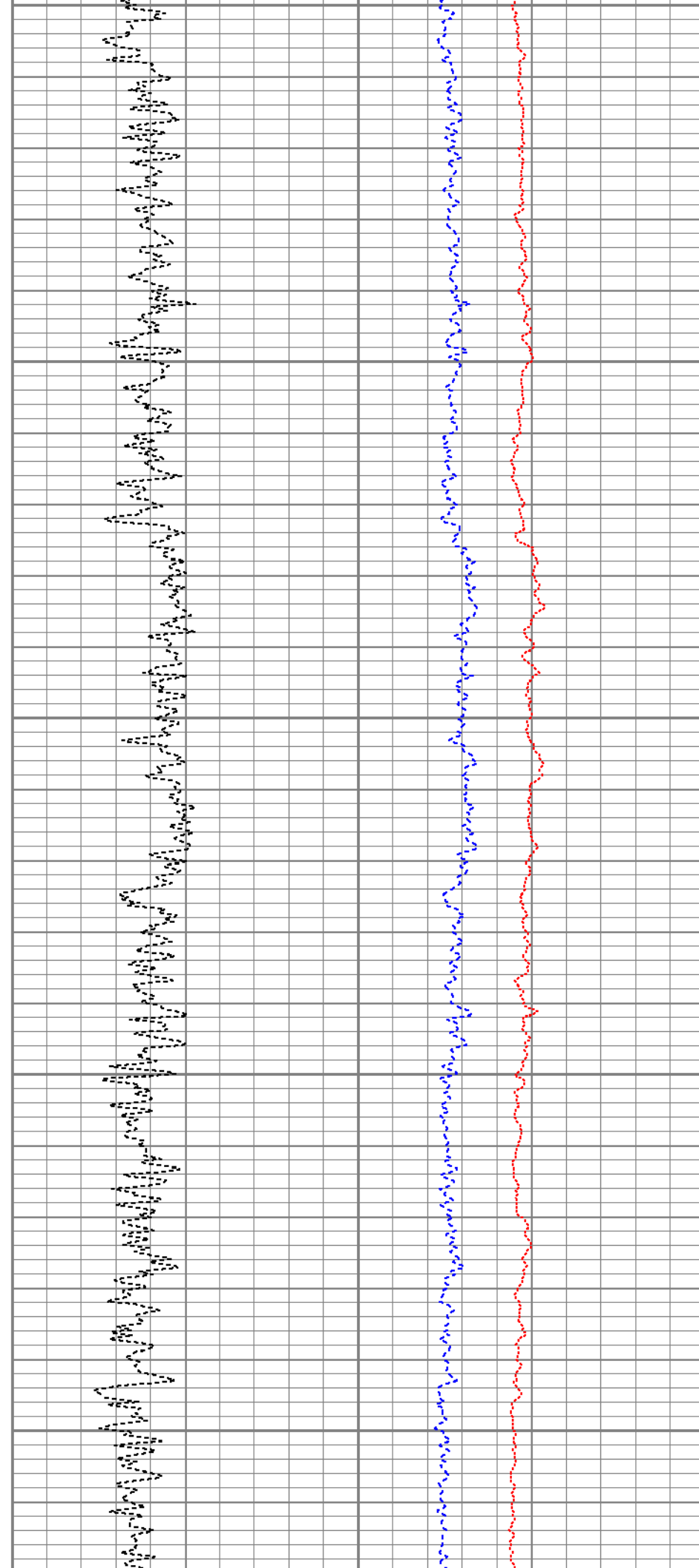
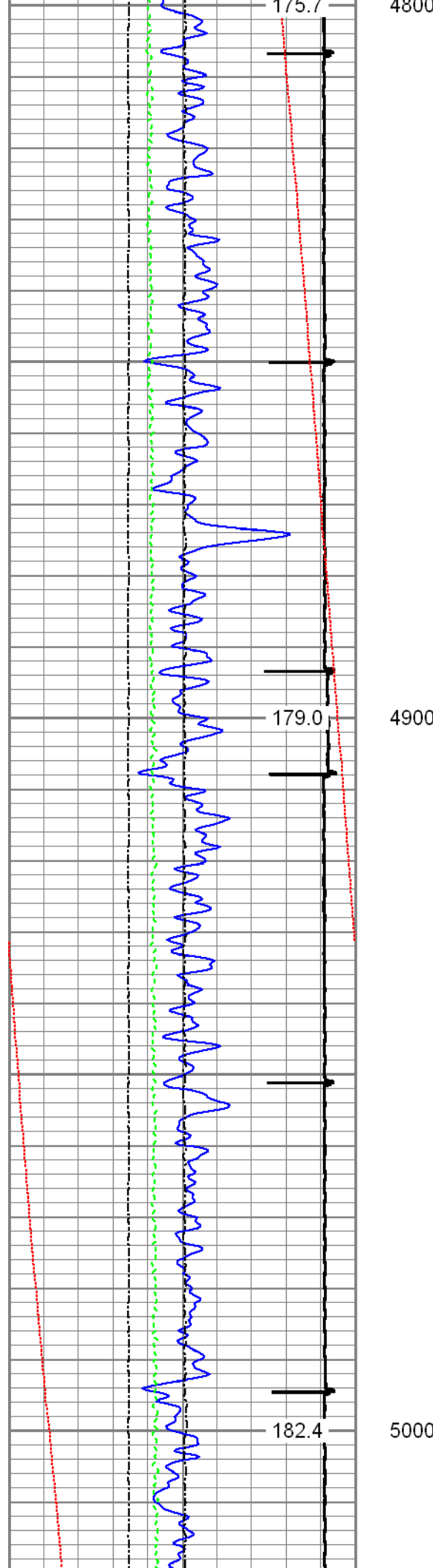


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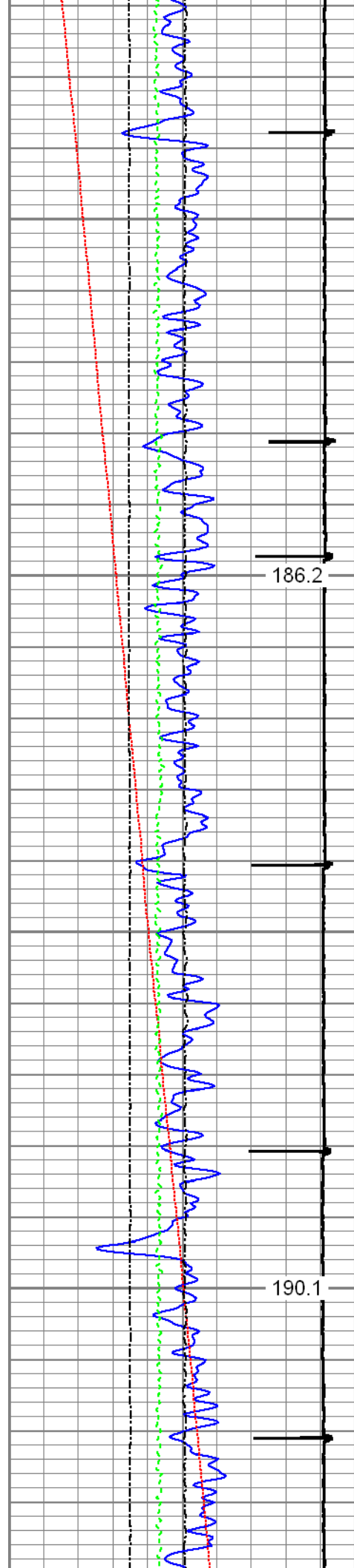
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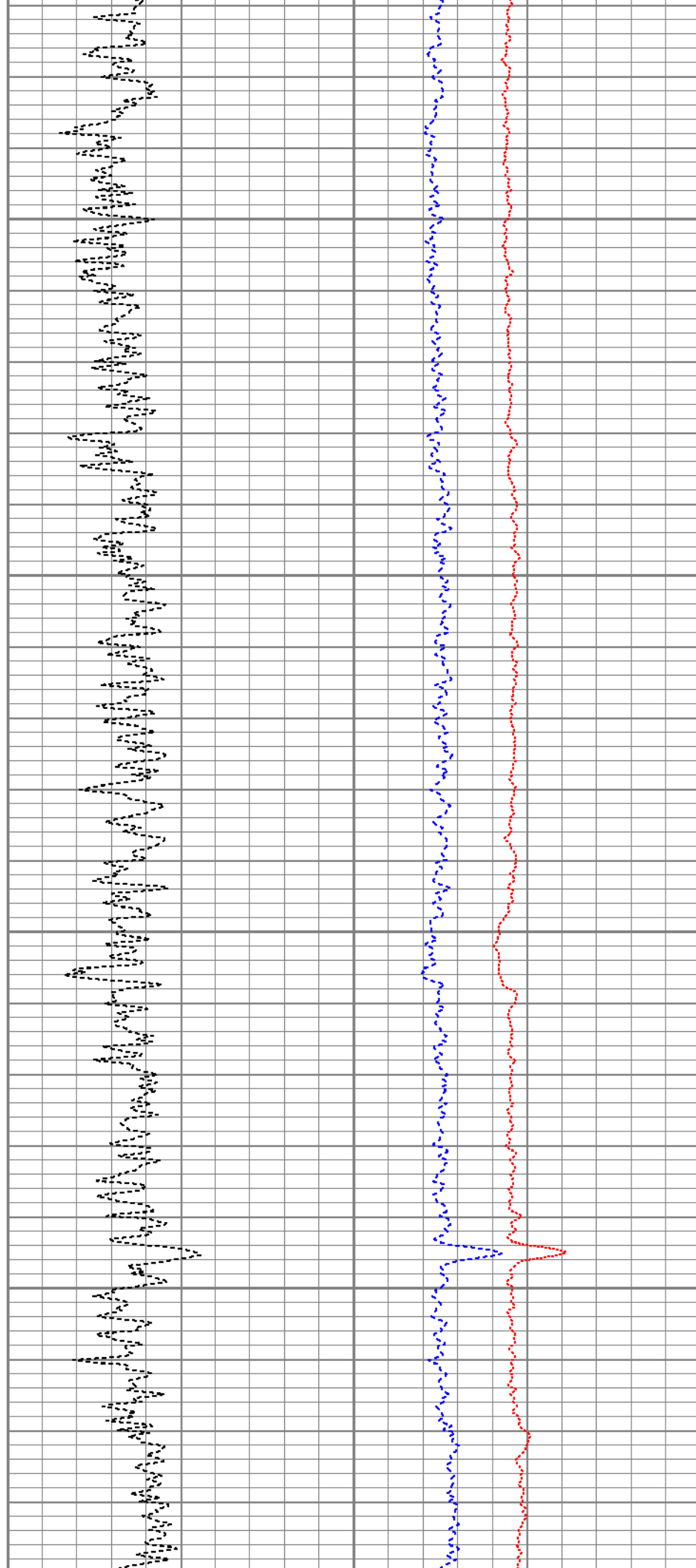


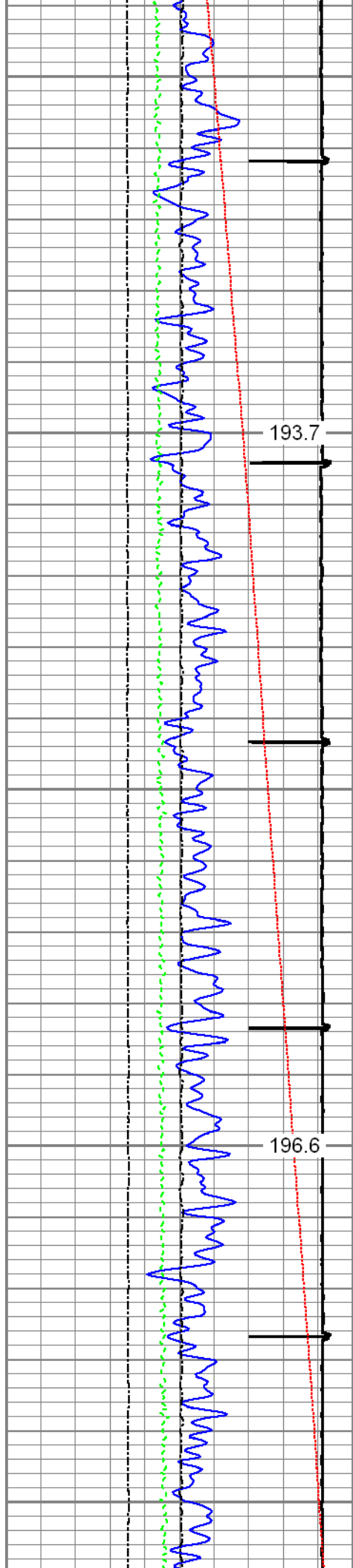
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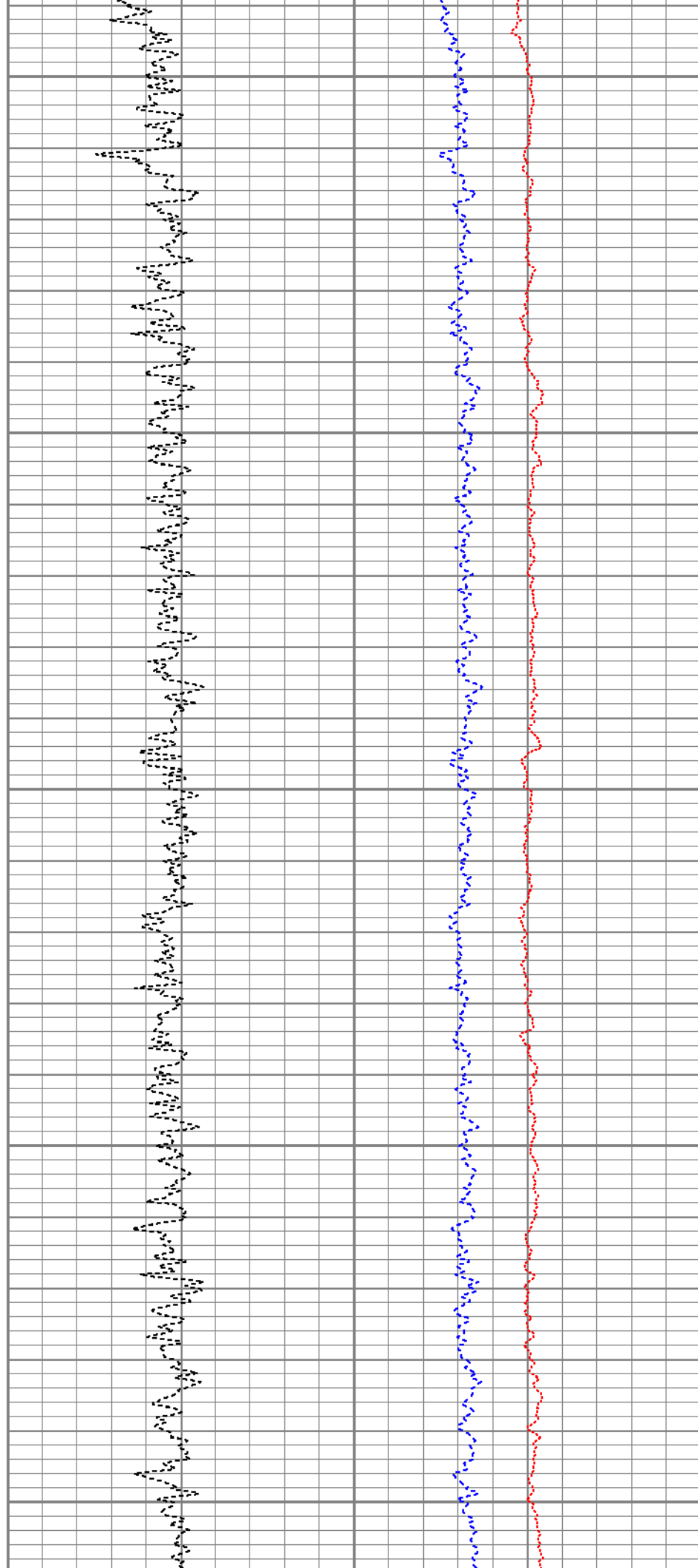


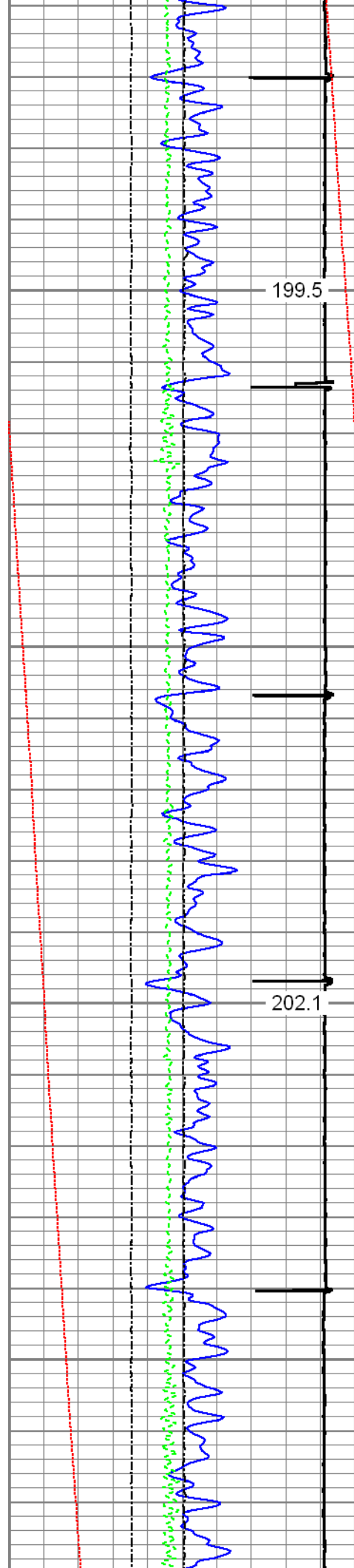
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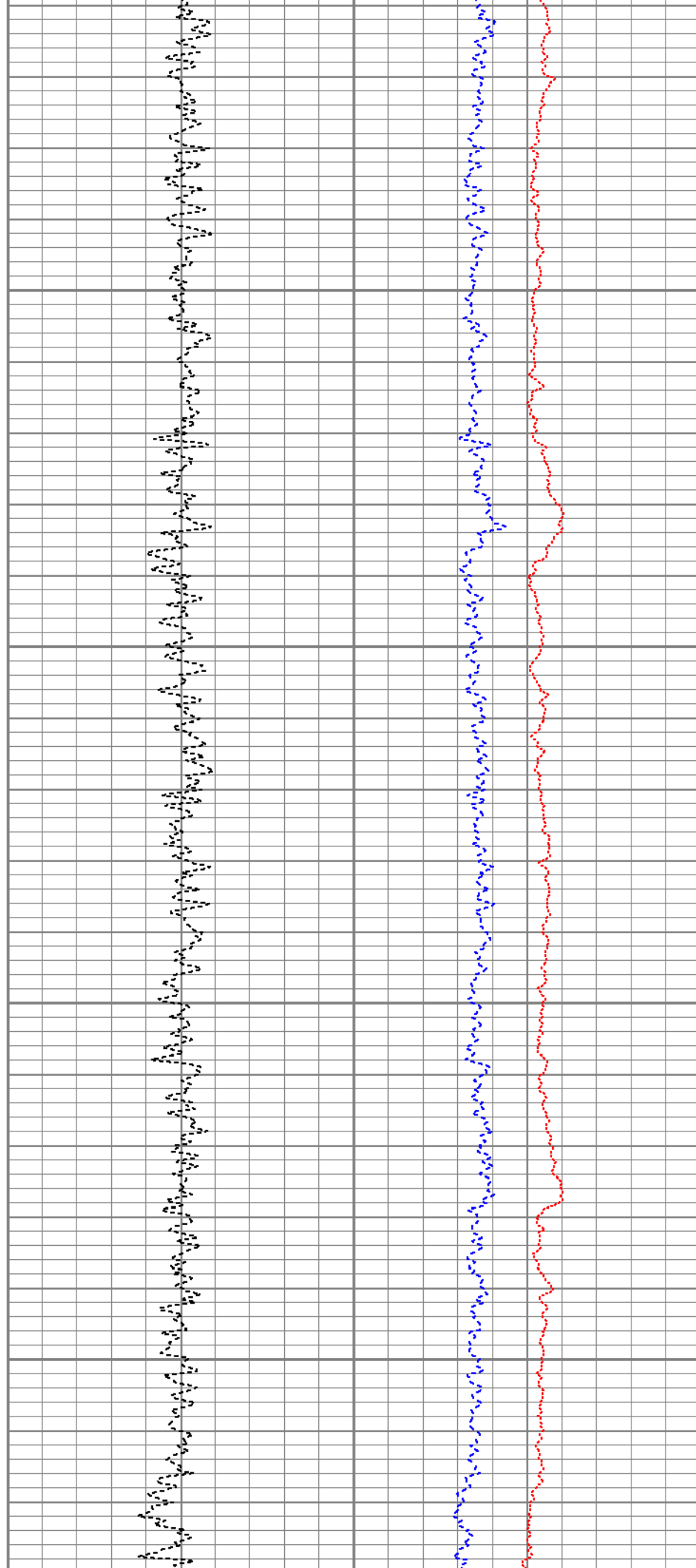


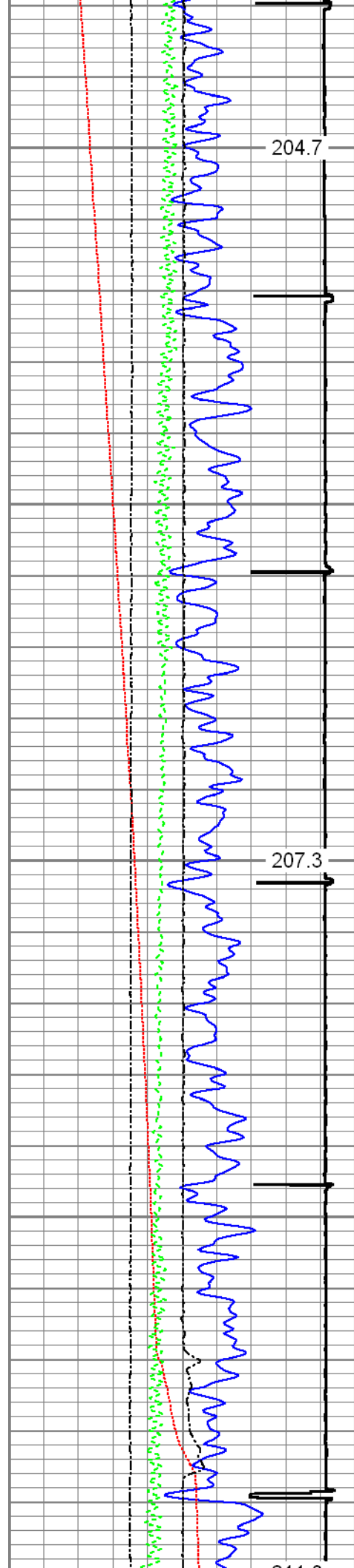
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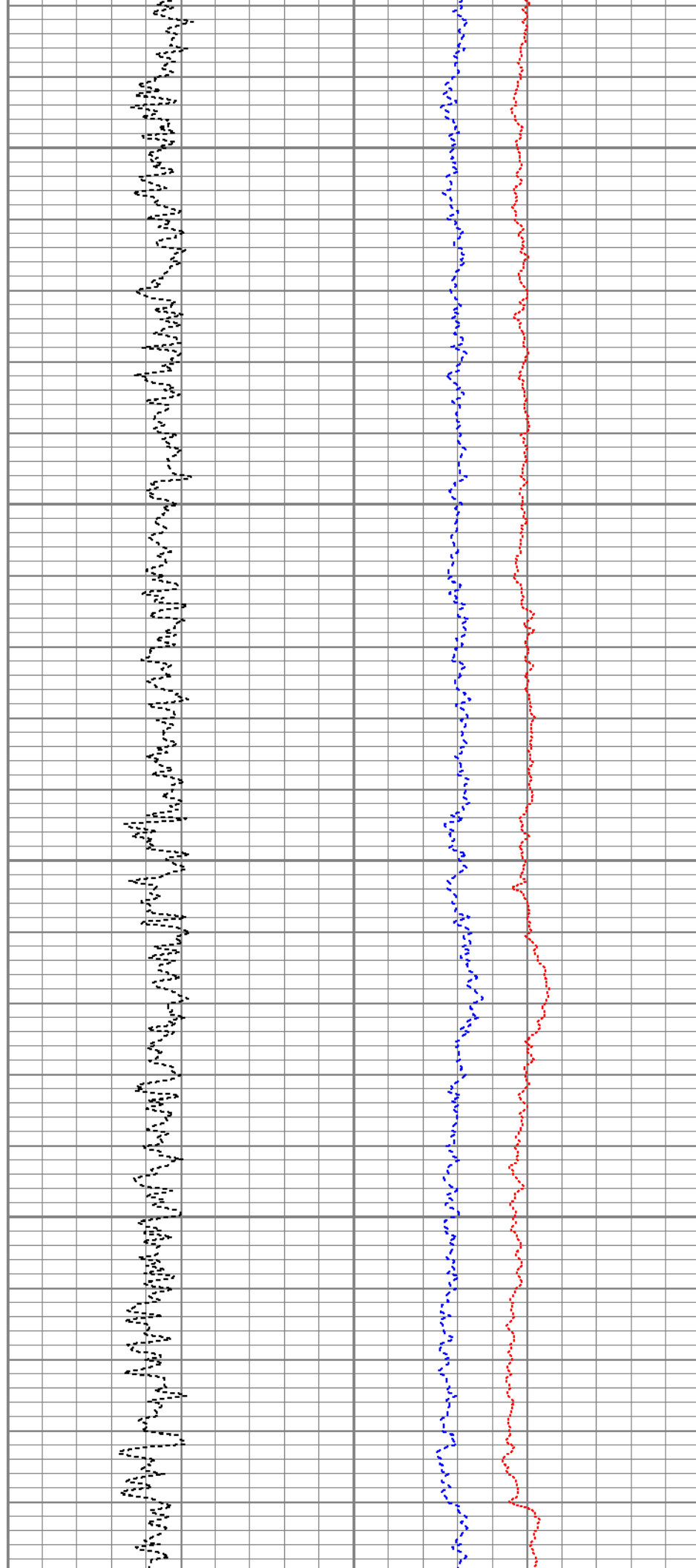
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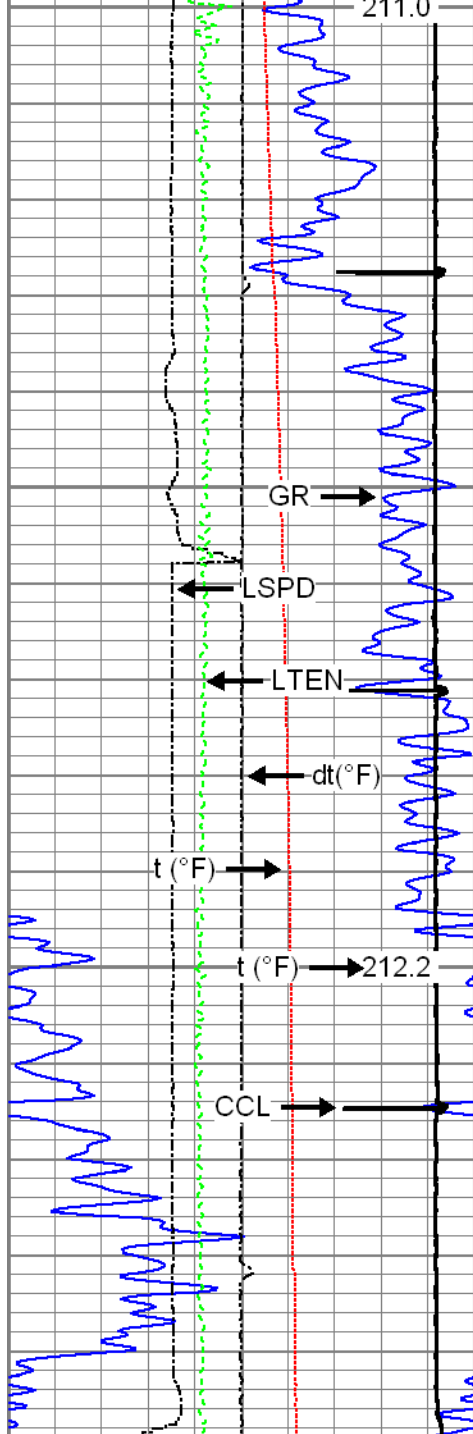
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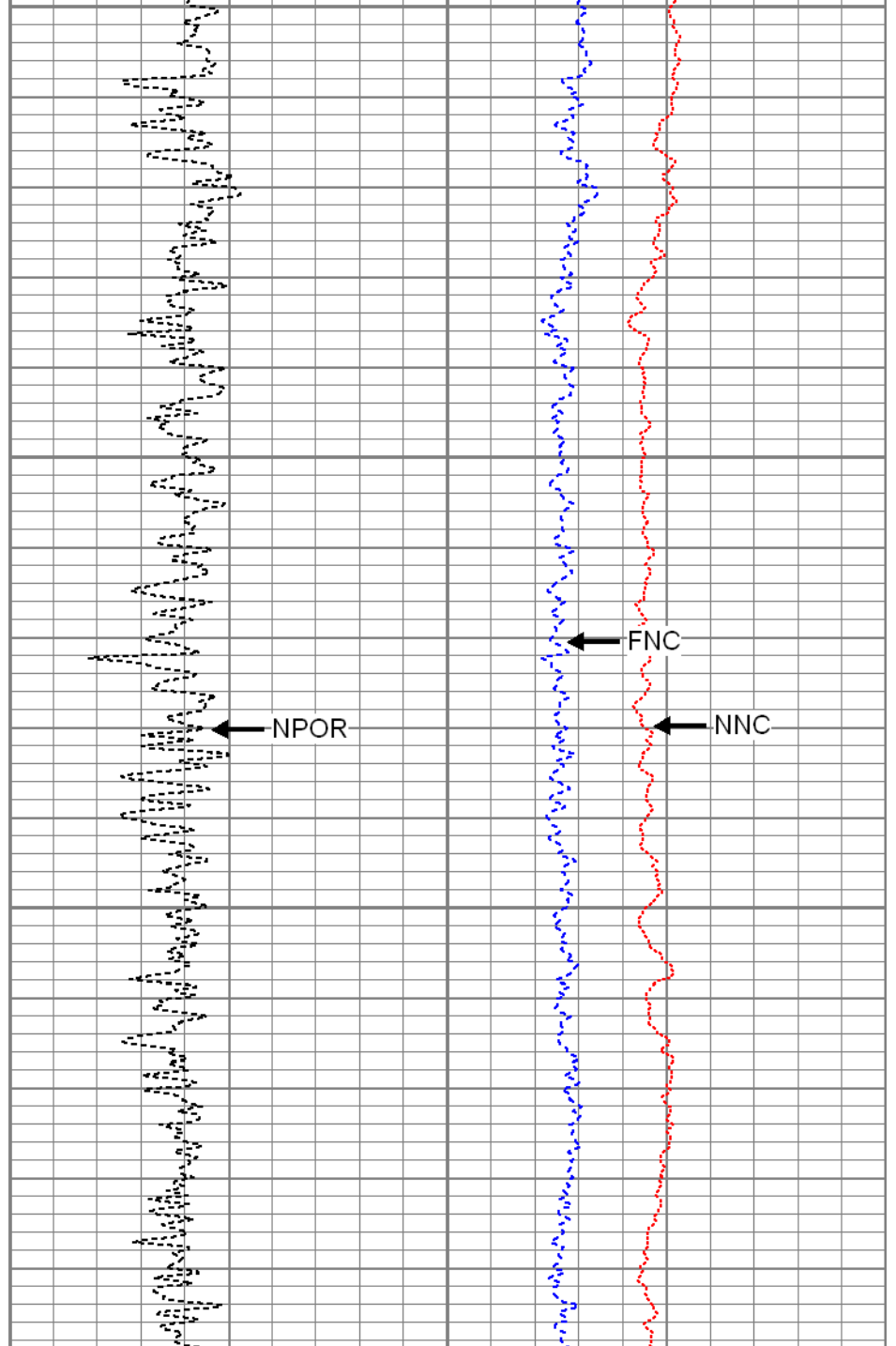




0	Gamma Ray (GAPI)	120
Casing Collar Locator		
0	Temperature (degF)	20
-100	Line Speed (ft/min)	100
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2

5900

6000



60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
0		0		Near Neutron (cps)	10000



Repeat Section

Recorded With 2500 PSI Surface Induced Pressure

Database File: 01-28-16\_noble energy\_remora lc34-715\_mit\_rbl\_cnl.db  
 Dataset Pathname: pass9

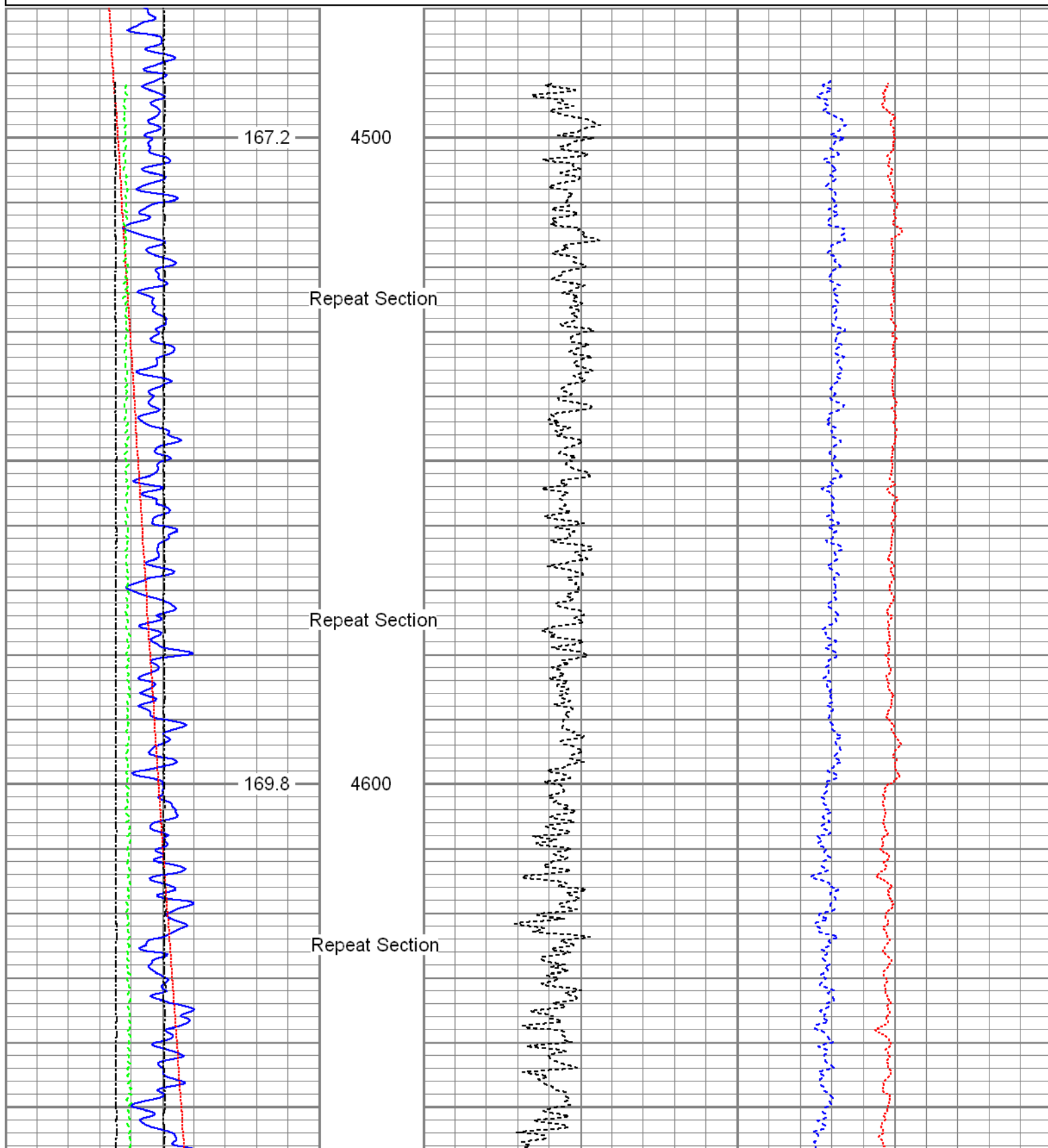
Presentation Format: cnl\_mit  
Dataset Creation: Thu Jan 28 09:18:06 2016 by Log 7.0 B1  
Charted by: Depth in Feet scaled 1:240

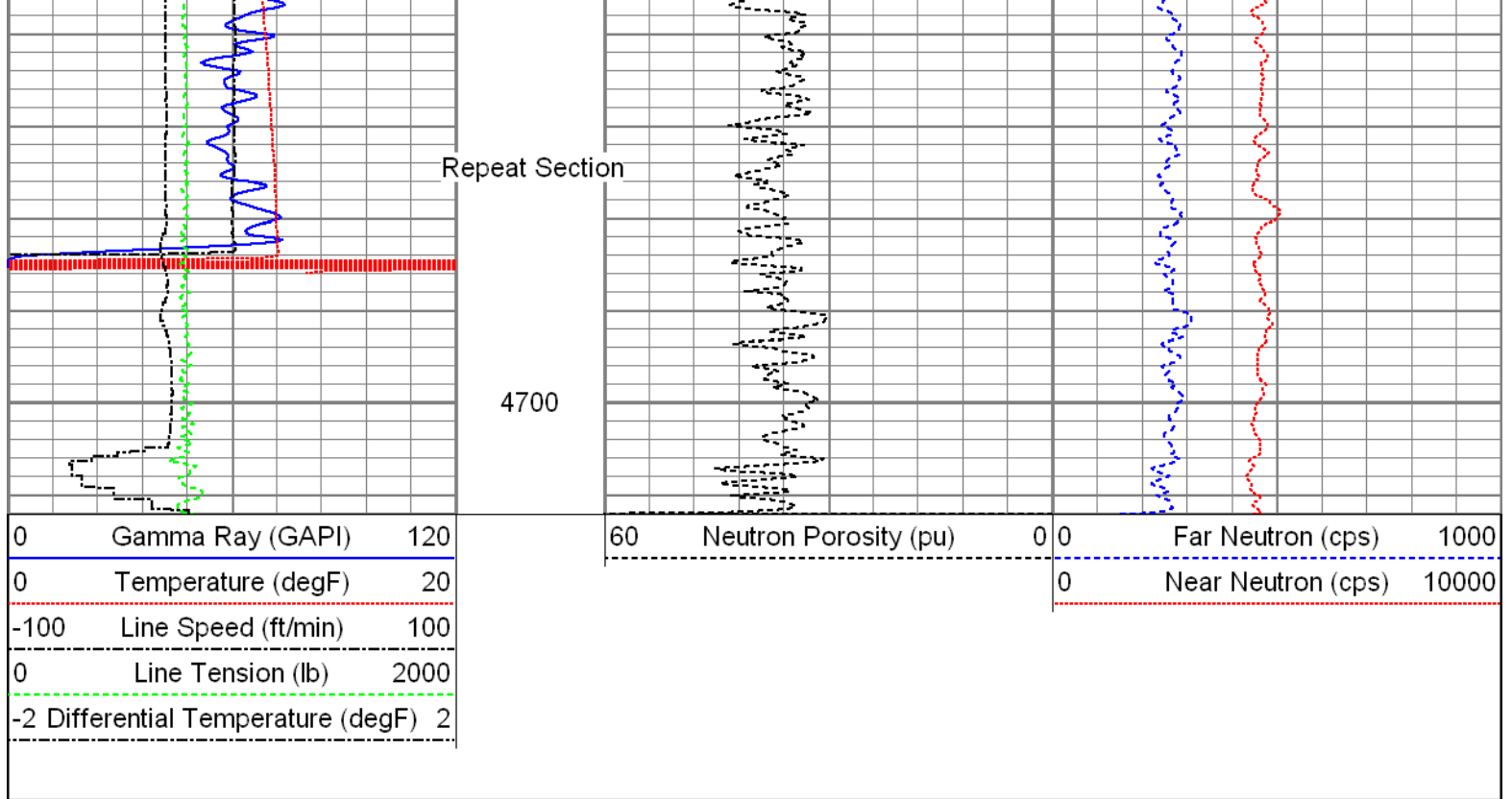
0	Gamma Ray (GAPI)	120
0	Temperature (degF)	20
-100	Line Speed (ft/min)	100
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2

60 Neutron Porosity (pu) 0

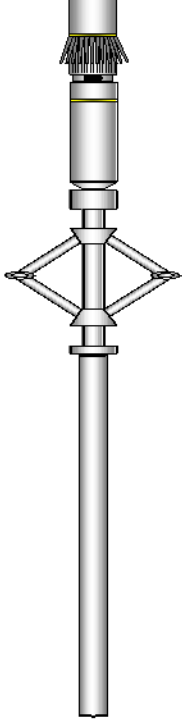
0 Far Neutron (cps) 1000

0 Near Neutron (cps) 10000





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	30.24		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			UW_AGS-UW_AGS_001 (215017) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (10012277) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10013899) Production Gamma Ray	1.93	1.69	9.50
			UW_PRT-UW_PRT_016 (10025097) Platinum Resistance Thermometer	1.04	1.69	5.20
TEMP	28.84		UW_PRC-DSSRAC (081) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
			UW_RBT-UW_RBT_004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVF3FT	21.81					
WVFS1	21.81					
WVFS2	21.81					
WVFS3	21.81					
WVFS4	21.81					
WVFS5	21.81					
WVFS6	21.81					
WVFS7	21.81					
WVFS8	21.81					
CBLTEMP	21.81					
CBLROT	21.81					
WVF5FT	20.81					
			UW_PRC-DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00

MIT	11.80		UW_MIT-UW_MIT40_027 (218950) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #4 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
			CNL-007 (1005) Compensated Neutron Logging Tool	6.61	1.69	30.00
CNLSC	1.53					
CNSSC	1.12					
TSTAMP	0.00					
Dataset: 01-28-16_Noble Energy_Remora LC34-715_MIT_RBL_CNL.db: field/well/run1/pass9 Total Length: 34.48 ft Total Weight: 353.30 lb O.D. 3.13 in						

Calibration Report			
Database File:	01-28-16_Noble Energy_Remora LC34-715_MIT_RBL_CNL.db		
Dataset Pathname:	post		
Dataset Creation:	Thu Jan 28 13:24:41 2016 by Log 7.0 B1		
Compensated Neutron Calibration Report			
Serial Number:	1005		
Tool Model:	007		
Master Calibration	Tue Jun 03 09:29:29 2014		
Detector	Readings		
Short Space	240.87	cps	
Long Space	303.55	cps	
Ratio	Measured	Reference	
	0.8150	Sleeve: 1.0000	
CNRAT Gain K	1.0271		
Before Survey			
Detector	Readings		
Short Space		cps	
Long Space		cps	
Ratio	Measured	Reference	
After Survey			
Detector	Readings		
Short Space		cps	



Long Space		cps	
Ratio		Measured	Reference
Multi-finger Imaging Tool Calibration Report			
Serial Number:		218950	
Number of Fingers:		40	
Tool Model:		UW_MIT40_027	
Inclinometer Calibration Report			
Performed:		Fri, Oct, 10 10:41:51 2008	
Calibration Angle:		45	
Vertical:		Inc X	Inc Y
Finger 1 up:		1996	1975
Finger 31 up:		2238	2226
Finger 21 up:		1760	2216
Finger 11 up:		1769	1745
Sensitivity ratio:		2250	1738
X-axis angle:		1.00023	
Deviation const.:		314.283	
		339.139	
Finger Calibration Report			
Performed:		Thu Jan 28 07:56:37 2016	
Ring size:	4	5	6
(in)	Sens	Sens	Sens
Finger 01:	1381 275.0	1656 296.0	1952 312.0
Finger 02:	1458 268.0	1726 288.0	2014 301.0
Finger 03:	1674 270.0	1944 281.0	2225 289.0
Finger 04:	1667 268.0	1935 279.0	2214 284.0
Finger 05:	1544 256.0	1800 268.0	2068 285.0
Finger 06:	1531 246.0	1777 261.0	2038 275.0
Finger 07:	1359 267.0	1626 285.0	1911 311.0
Finger 08:	1543 248.0	1791 262.0	2053 280.0
Finger 09:	1425 261.0	1686 280.0	1966 303.0
Finger 10:	1485 259.0	1744 273.0	2017 290.0
Finger 11:	1480 255.0	1735 269.0	2004 283.0
Finger 12:	1312 273.0	1585 294.0	1879 316.0
Finger 13:	1580 274.0	1854 283.0	2137 297.0
Finger 14:	1413 279.0	1692 293.0	1985 313.0
Finger 15:	1542 258.0	1800 272.0	2072 286.0
Finger 16:	1395 279.0	1674 294.0	1968 311.0
Finger 17:	1618 268.0	1886 276.0	2162 290.0
Finger 18:	1385 284.0	1669 305.0	1974 323.0
Finger 19:	1641 257.0	1898 257.0	2155 265.0
Finger 20:	1511 263.0	1774 274.0	2048 290.0
Finger 21:	1601 248.0	1849 255.0	2104 265.0
Finger 22:	1533 270.0	1803 282.0	2085 295.0
Finger 23:	1355 271.0	1626 288.0	1914 305.0
Finger 24:	1676 260.0	1936 271.0	2207 276.0
Finger 25:	1373 287.0	1660 308.0	1968 320.0
Finger 26:	1540 283.0	1823 298.0	2121 303.0
Finger 27:	1461 257.0	1718 274.0	1992 277.0
Finger 28:	1651 273.0	1924 286.0	2210 285.0
Finger 29:	1475 270.0	1745 293.0	2038 292.0
Finger 30:	1418 268.0	1686 294.0	1980 299.0
Finger 31:	1527 263.0	1790 282.0	2072 281.0
Finger 32:	1346 260.0	1606 283.0	1889 287.0
Finger 33:	1631 295.0	1926 315.0	2241 311.0
Finger 34:	1542 265.0	1807 281.0	2088 280.0
Finger 35:	1442 265.0	1707 284.0	1991 290.0
Finger 36:	1595 273.0	1868 289.0	2157 293.0

Finger 37:	1603	269.0	1872	285.0	2157	293.0	2450
Finger 38:	1501	268.0	1769	286.0	2055	295.0	2350
Finger 39:	1462	274.0	1736	294.0	2030	307.0	2337
Finger 40:	1596	279.0	1875	298.0	2173	306.0	2479

Post Survey Calibration Check								
Performed:					Thu Jan 28 13:24:28 2016			
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.009	0.004	5.004	0.002	6.004	0.002	7.011	0.006
Finger 02:	3.996	-0.002	5.001	0.001	6.001	0.000	7.011	0.006
Finger 03:	3.901	-0.049	4.907	-0.046	5.903	-0.049	6.912	-0.044
Finger 04:	3.911	-0.045	4.923	-0.039	5.911	-0.045	6.924	-0.038
Finger 05:	3.998	-0.001	5.003	0.001	6.009	0.004	7.012	0.006
Finger 06:	3.999	-0.000	5.012	0.006	6.006	0.003	7.012	0.006
Finger 07:	3.995	-0.003	5.002	0.001	6.000	0.000	7.001	0.001
Finger 08:	3.991	-0.005	5.005	0.002	6.002	0.001	7.009	0.004
Finger 09:	4.000	0.000	4.999	-0.001	6.000	-0.000	6.999	-0.001
Finger 10:	3.996	-0.002	5.000	0.000	5.999	-0.000	6.998	-0.001
Finger 11:	3.993	-0.004	5.003	0.001	5.998	-0.001	7.008	0.004
Finger 12:	3.996	-0.002	5.006	0.003	6.001	0.001	7.014	0.007
Finger 13:	3.994	-0.003	5.000	-0.000	6.000	-0.000	7.003	0.001
Finger 14:	3.999	-0.000	5.009	0.005	6.000	-0.000	7.008	0.004
Finger 15:	3.989	-0.005	4.996	-0.002	5.990	-0.005	6.998	-0.001
Finger 16:	4.002	0.001	5.000	-0.000	5.992	-0.004	6.997	-0.001
Finger 17:	3.996	-0.002	4.992	-0.004	6.001	0.000	6.992	-0.004
Finger 18:	3.998	-0.001	4.994	-0.003	5.991	-0.004	6.992	-0.004
Finger 19:	3.997	-0.002	4.987	-0.006	5.994	-0.003	6.995	-0.002
Finger 20:	4.001	0.001	4.992	-0.004	5.993	-0.004	6.992	-0.004
Finger 21:	3.991	-0.004	4.993	-0.003	6.001	0.001	6.988	-0.006
Finger 22:	3.993	-0.003	4.991	-0.005	5.998	-0.001	6.988	-0.006
Finger 23:	3.999	-0.001	5.001	0.001	6.001	0.000	6.980	-0.010
Finger 24:	3.991	-0.005	5.001	0.000	5.999	-0.000	6.991	-0.004
Finger 25:	3.988	-0.006	4.990	-0.005	5.993	-0.003	6.984	-0.008
Finger 26:	3.994	-0.003	4.998	-0.001	5.998	-0.001	6.989	-0.005
Finger 27:	3.977	-0.011	4.996	-0.002	5.992	-0.004	6.995	-0.002
Finger 28:	3.982	-0.009	4.992	-0.004	5.993	-0.004	6.999	-0.001
Finger 29:	3.986	-0.007	5.000	-0.000	5.985	-0.008	7.002	0.001
Finger 30:	3.997	-0.001	5.006	0.003	5.996	-0.002	7.002	0.001
Finger 31:	3.993	-0.004	5.006	0.003	5.988	-0.006	7.003	0.002
Finger 32:	3.999	-0.000	4.993	-0.003	5.993	-0.003	7.007	0.004
Finger 33:	3.986	-0.007	4.996	-0.002	5.992	-0.004	6.993	-0.003
Finger 34:	3.990	-0.005	5.001	0.000	6.000	0.000	7.004	0.002
Finger 35:	3.996	-0.002	5.001	0.000	6.004	0.002	6.998	-0.001
Finger 36:	4.002	0.001	4.994	-0.003	6.000	-0.000	7.001	0.000
Finger 37:	4.004	0.002	5.004	0.002	6.003	0.001	6.994	-0.003
Finger 38:	3.996	-0.002	4.994	-0.003	6.000	-0.000	7.008	0.004
Finger 39:	4.005	0.003	4.994	-0.003	6.006	0.003	7.008	0.004
Finger 40:	4.012	0.006	5.002	0.001	6.001	0.001	7.000	-0.000
Average:	3.991	-0.004	4.995	-0.003	5.993	-0.003	6.996	-0.002

Segmented Cement Bond Log Calibration Report		
Serial Number:	10013454	
Tool Model:	UW_RBT_004	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	107.678	ft

Master Calibration, performed Thu Jan 28 08:15:24 2016:		
Raw (v)	Calibrated (mv)	Results

	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.001	0.646	0.800	62.165	94.818	0.916
5FT	-0.004	0.728	0.800	62.165	83.927	1.107
S1	-0.001	0.648	0.000	100.000	153.951	0.188
S2	-0.003	0.651	0.000	100.000	152.996	0.398
S3	-0.003	0.639	0.000	100.000	155.727	0.500
S4	-0.003	0.646	0.000	100.000	154.127	0.510
S5	-0.001	0.645	0.000	100.000	154.639	0.189
S6	-0.003	0.645	0.000	100.000	154.395	0.388
S7	-0.002	0.642	0.000	100.000	155.290	0.372
S8	-0.002	0.649	0.000	100.000	153.409	0.369

#### Temperature Calibration Report

Serial Number: 10025097  
 Tool Model: UW\_PRT\_016  
 Performed: Wed Feb 11 13:44:44 2015

Point #	Reading	Reference
1	13053.00 cps	68.00 degF
2	18014.00 cps	104.00 degF
3	29668.00 cps	176.00 degF
4	41181.00 cps	248.00 degF
5	52983.00 cps	320.00 degF
6	58931.00 cps	356.00 degF
7	cps	degF
8	cps	degF
9	cps	degF
10	cps	degF

#### Gamma Ray Calibration Report

Serial Number: 10013899  
 Tool Model: UW\_PGR\_020  
 Performed: Thu Jan 14 11:37:27 2016

Calibrator Value: 1.0 GAPI  
 Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps  
 Sensitivity: 1.0000 GAPI/cps



Company: Noble Energy Inc.  
 Well: Remora LC34-715  
 Field: Wildcat  
 County: Weld  
 State: Colorado